IDG.net

Year 2000 tool kit

10 things you need to know to build a year 2000 contingency plan. **50**

Keep 'em happy

Survey of 5,600 firms shows the best bolster retention. **64**

Forget the Big Six

Users like James Krasner pick boutique firms for consulting. **35**

COMPUTERWORLD

The World's Technology Newspaper
News updates, features, forums: www.computerworld.com
July 6, 1998 • Vol. 32 • No. 27 • 98 pages • $4/Copy

Fueled by IT, the practice of **spying on your corporate enemies is exploding.** NutraSweet, for one, says its $250,000-per-year computer intelligence center **saved it $50 million.** Do you have such a program in place? Your competitors do. **In Depth, page 62**

Ava Youngblood, president of the Society for Computer Intelligence Professionals

MICHAEL ABRAMSON

Users gain voice in SAP plans

▶ *In a switch, R/3 shops to vote on changes*

By Craig Stedman

SAP AG HAS set up a formal process for its Chicago-based user group to propose changes to R/3, a move some users hope will give them more input on development of the hot-selling enterprise applications.

Voting on suggested software additions began during the past few months on the World Wide Web site of the independent Americas' SAP Users' Group (*www.asug.com*), according to users and other sources.

The arrangement with the user group, known as ASUG, binds SAP to respond in a specified amount of time to prioritized lists of enhancements put forward by vertical industry and product interest groups, the sources said.

R/3 project managers who have had a hard time persuading SAP to make changes needed by their business users said they hope the ASUG voting will put more weight behind the requests that make the cut.

"You do get 'no' an awful lot from SAP," said Mike Panesis, director of management information systems at Church & Dwight Co. in Princeton, N.J. The $575 million maker of baking soda began using multiple R/3 applications in April.

SAP, page 78

Monsanto's Gary Banks takes care not to "pepper SAP with minor changes"

More delays for NT 5.0

▶ *Users expect to wait, stick with NT 4.0*

By Sharon Gaudin

TIRED OF HEARING about delays and mystery timetables for the release of Microsoft Corp.'s Windows NT 5.0, corporate users said waiting for it isn't part of their plans.

But that doesn't mean they won't buy NT. It means they will continue buying NT 4.0.

Microsoft acknowledged last week that Beta 2, due by June 30, won't be ready until fall. And there's no word out of Redmond, Wash., when the official release might show its face.

"There's nothing wrong with sticking with the current version of NT," said Isaac Applbaum, president and CEO of Concorde Solutions, Inc., the Concord, Calif.-based infor-

NT 5.0, page 78

Web coupons clipping costs for big retailers

By Sharon Machlis

COUPONS ARE moving into the digital age.

Major retailers, manufacturers and direct marketers are offering coupons on the World Wide Web — not simply discounts for buying online, but offers you can print out and bring to a store.

TARGET MARKETING

"It's another opportunity for us to sell more product to a different customer," said Al Trotta, marketing manager at Cumberland Farms, Inc., a chain of about 800 convenience stores based in Canton, Mass. Others using online coupons include Kmart Corp., Nabisco Brands Co., General Mills, Inc., H & R Block, Inc. and McDonald's Corp.

The advantage of Internet coupons over their paper counterparts is that advertisers can more finely target their offers.

If Web site registration includes a consumer's grocery store "loyalty card" number, for example, a company has a year's worth of family buying patterns to mine. That could help, say, a peanut butter company use targeted coupons to lure users of rival brands.

"This is going to be very sophisticated . . . consumer

Web coupons, page 79

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MERCED

▶ *How to get ready for the 64-bit 'vaporchip'*

PAUL WATSON

Intel's forthcoming Merced processor will be great for huge data warehouses, high-traffic Internet sites — and fattening Intel's profits. But it won't be a realistic option for corporate America until 2003, according to *Computerworld*'s comprehensive report, which features step-by-step advice on how to prepare for the era of mainstream 64-bit computing.

Review Center, page 55

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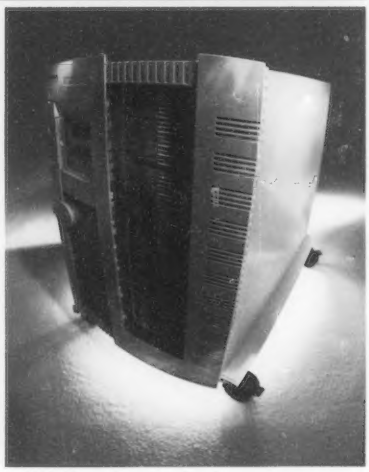

intel inside

pentium II

[1]All prices and discounts shown refer to U.S. estimated selling prices on select models. Reseller prices may vary. Operating system installed on desktop and notebook products. Compaq is not liable for pictorial or typographical errors in this advertisement. [2]Pre-failure warranty offers replacement of SMART hard drives before they actually fail when using Compaq Insight Manager. Some restrictions and exclusions apply. [3]Certain restrictions and exclusions apply. [4]24X Max CD-ROM data transfer rates vary from 1500 to 3600 Kbps. [5]20X Max CD-ROM drive data transfer rates may vary from 1275 to 3000 Kbps. [6]The K56flex protocol is designed only to allow faster downloads from K56flex compliant digital sources. Maximum achievable download transmission rates currently do not reach 56 Kbps, and will vary with line conditions. When 128 MB memory modules are available. [7]For hard drives, GB=billion bytes. Intel, Intel Inside Logo and Pentium are registered trademarks and MMX is a trademark of Intel Corp. Microsoft and Windows NT are registered trademarks of Microsoft Corporation. Other products mentioned herein may be trademarks or registered trademarks of their respective companies. Compaq, Compaq logo, Deskpro, and ProLiant are registered trademarks and Armada and Compaq Premier Sound are trademarks of Compaq Computer Corp. ©1998 Compaq Computer Corp. All rights reserved.

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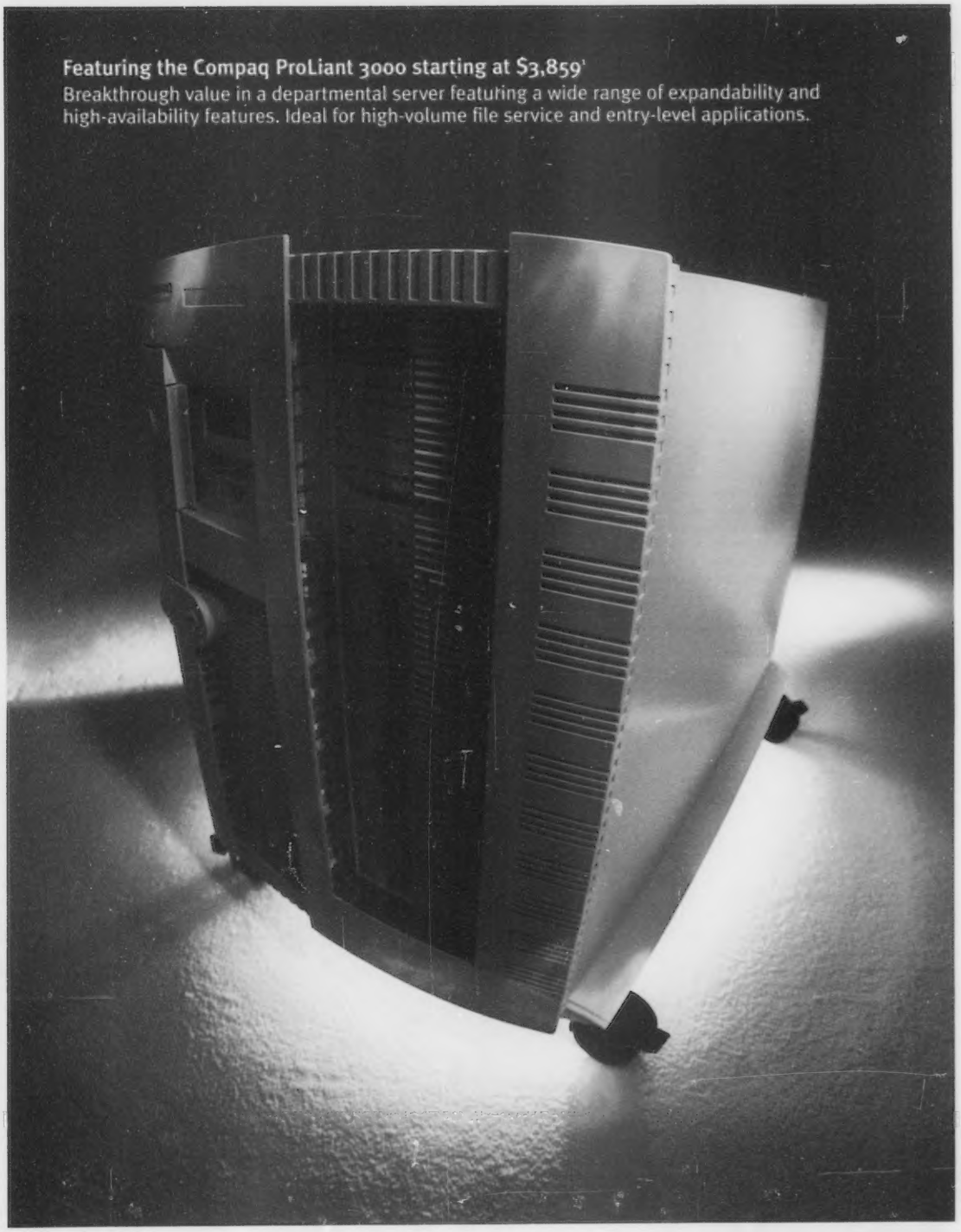


COMPAQ

UP FRONT

Moore's strategy

Thanks, Mr. Moore, that law of yours is really coming in handy. If you're fretting about the PC industry being in a bit of a slump, never fear. Microsoft has all but guaranteed that corporations will need tons of new PCs around the middle of next year.

As part of its relatively subdued rollout of Windows 98 last month, Microsoft officials mentioned that this will be the end of the Windows 9X family and that corporate users should move with all deliberate speed to Windows NT.

That's despite reports that the NT 5.0 beta is approaching an unfathomable 40 million lines of code and will require 64M bytes of memory to run efficiently. No problem. This is the Moore's Law strategy, and it's served Microsoft and PC makers well time and time again. Moore's Law states that hardware performance will double every 18 months. It's held true for 35 years. For $200 today, you can buy 350 times as much PC hard disk as you could for the same price 10 years ago.

Software makers stub their toes over trying not to demand that users upgrade their hardware. Microsoft always does the opposite. It sets hardware requirements about a generation ahead of where most users sit. So, like it or not, get ready to upgrade. You'll probably want the features and power of NT on your desktop at some point anyway. And by the time the operating system arrives, the hardware will be there as well.

In response to reader requests for better indexing, I'm willingly ceding this space beginning next week to a full-page table of contents and quick-read executive summary. This column will move back to the editorial page, where I will share opinion space with executive editor Maryfran Johnson.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE

BY RICH TENNANT

"The best thing about WebTV is I'm able to answer 50 percent more 'Jeopardy' questions than before."

E-Mail Rich Tennant at thewave@tiac.net

Outsourcer: No money down

▸ *EDS division signs unusual E-commerce deal to share revenue*

By Julia King

ELECTRONIC DATA SYSTEMS CORP. is taking a big chance on electronic commerce.

The outsourcer's Dallas-based C2O Internet consulting and services division just signed a five-year, $30 million agreement to design, host and operate several electronic-commerce sites for Hachette Filipacchi New Media publications, including *Road & Track*, *Travel Holiday* and *Eating Well*.

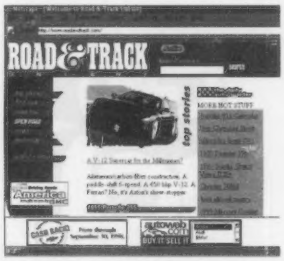
The New York publisher won't pay a dime up front. C2O will get a share of revenue generated from the sale of auto accessories, vacation packages and cookbooks on the magazines' World Wide Web sites.

"This wipes out a very large chunk of our cost structure and places a much larger emphasis on revenue," said Jim Docherty, president of Hachette. The novel deal "effectively allows us to build quicker and larger and more robust sites," he added.

DEAL DETAILS

Terms of the deal, which will be announced later this week, call for C2O to develop, launch and manage Web sites for Hachette's 30 consumer brands. That includes research to determine the makeup of the publications' online audiences. Once launched, C2O will host and manage the sites from its technology center in Dallas.

Typically, C2O consultants take six to eight weeks to develop a strategy, then go to work on design and implementation, according to a company spokesperson.



Hachette won't pay a dime up front to C2O for its site management

Other C2O customers include Metreon, a Sony Corporation of America entertainment center in San Francisco; Du Pont Polyester Films; and the Air Transport Association, whose Web site furnishes air safety information to 25 member airlines.

But the other contracts aren't so-called co-sourcing deals, under which C2O shares in its customers' profits.

"It's a very atypical arrangement," said David Alschuler, managing director of electronic-commerce research at Aberdeen Group, Inc. in Boston. "In a more typical deal, Hachette may have paid $1 million up front plus $500,000 a year for hosting services, regardless of the activity on their sites," he said.

The company's co-sourcing arrangement evolved from a more traditional deal with C2O, Docherty said.

"We were paying them for a while to develop and host our sites, but then a lightbulb went off in both places," he said. "We had the content and advertisements, but not the technology. And they had no content. This way, they don't pay for content, and we don't pay for technology. Everybody makes out on the deal."

"To have a whole room full of programmers isn't my view of a long-term profitable picture. This lets us stick to publishing," he added. □

& **Some users don't want to go with a big-time integrator. Page 35**

Have it the 'smart' way

▸ *Burger King program drives smart-card use*

By Sharon Machlis

ONE OF THE U.S.'s most popular fast-food restaurants recently began to test what seems to be one of the country's least popular payment technologies.

Customers at four Long Island, N.Y., Burger King restaurants now can pay for their meals with special Burger King smart cards. Under the pilot, people who use the cards receive a "loyalty point" for each dollar spent, with 10 points earning a free breakfast value meal, for example.

"Loyalty programs are going to make smart cards take off," said Avivah Litan, an analyst at Gartner Group, Inc. in Stamford, Conn.

Though smart cards — so named because they incorporate a computer chip to store information — are becoming increasingly popular elsewhere in the world, the U.S. market has been slow to adopt them.

Burger King Corp. is working with Mondex USA, a smart-card company owned by seven major U.S. financial companies. Consumers can purchase cards at machines in the restaurants and also add to the cash value on an existing card at in-store restaurants and a few associated bank automated teller machines.

Burger King launched the program to see if a loyalty card would appeal to customers, said spokesman Charles Nicolas. Results won't be released until the test is over at year's end. □

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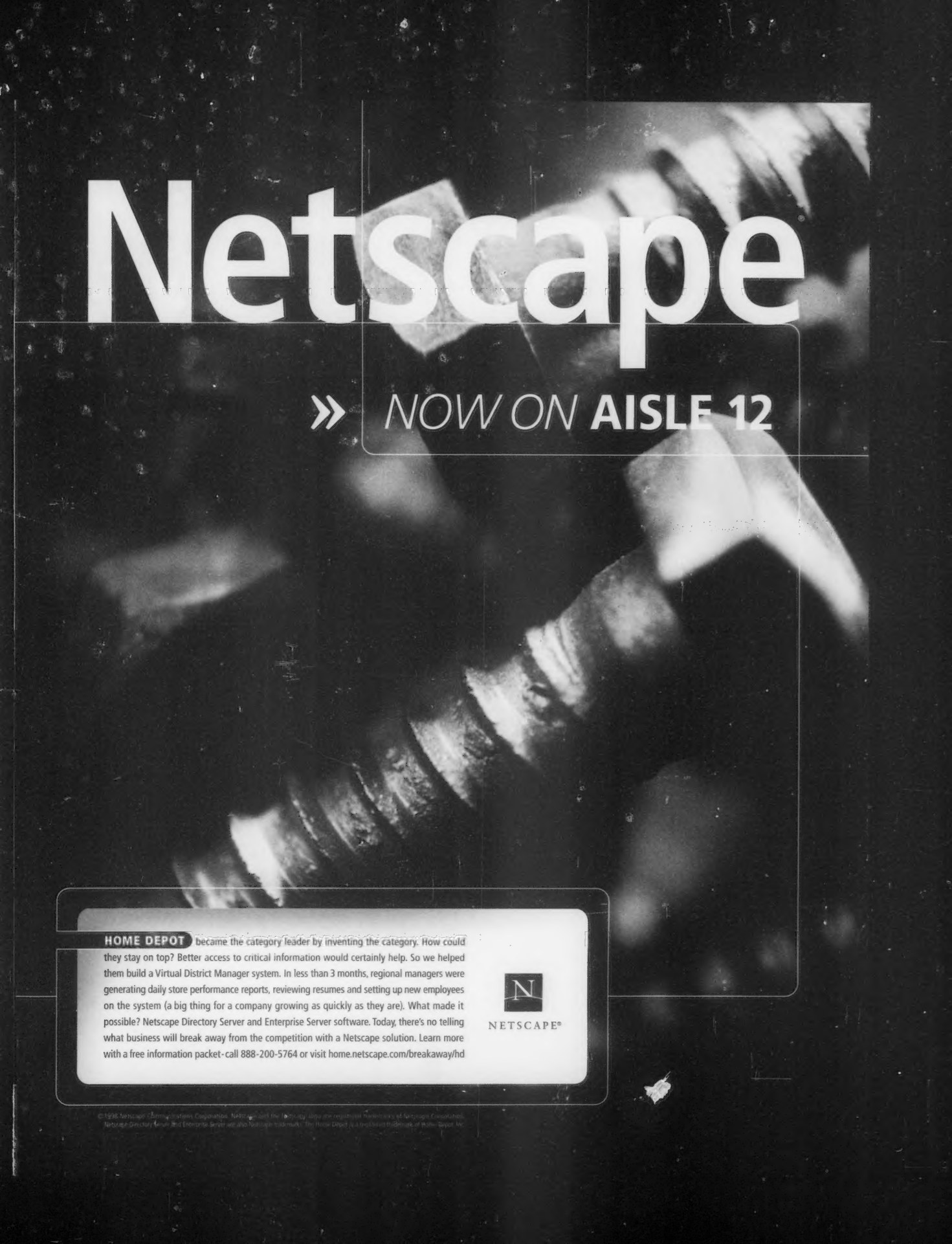
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Robert Blessman says Chicago Title Corp. is saving $100,000 with an electronic data warehouse. **Software, page 41**

Got the itch to Bay watch in San Francisco? Here's what to expect for jobs and culture. **Regional Scope, page 66**

Jim Banister says Warner Bros. will make money on shows distributed over a 'net/DVD combo. **Internet Commerce, page 37**

In this issue

SAP

- **SAP tries** to be even more important to customers, who still complain about R/3's complexity. **20**
- **Business application vendors add** modules to let users buy office supplies on the Internet. **20**
- **Vendors dust off** executive information systems to answer demands for high-level analysis. **20**
- **Supply-chain vendors rush** to pull R/3 data into their own software. **78**

NEWS

6 **Snap-on sales drop** after Baan order-entry system slows delivery.

8 **Spam works** as a marketing tool for companies that are careful not to offend.

9 **Sun acquires** middleware maker to bolster offerings for Web application servers.

14 **Ticketmaster speeds** sales with system to distribute nationwide calls that swamp local operators.

OPINION

29 **John Gantz pans** the AT&T/TCI merger, predicting it will bomb despite nifty special effects.

54 **Buyers should pressure** vendors for better warranties on packaged software, Paul A. Strassmann argues.

QUICKSTUDY

25 **Gigabit Ethernet:** The standard is final, but already users have made a decision.

TECHNICAL SECTIONS

CORPORATE STRATEGIES

35 **Users revolt** against the Big Six, picking smaller consultancies for specific projects.

35 **Human resources specialists flock** to trade shows hoping technical know-how will make recruiting easier.

INTERNET COMMERCE

37 **Warner Bros. plans** a weekly program with a Web/CD approach.

37 **Auto parts vendor expands** reach with Web site, adds international clientele.

THE ENTERPRISE NETWORK

39 **Networks take the blame** for slowdowns; net managers finger real culprits.

39 **Many companies are oblivious** to the average 12 to 15 hack attacks they experience each year.

SOFTWARE

41 **Tools emerge** to integrate applications automatically; users want them to mature.

SERVERS & PCs

45 **Amdahl boosts** mainframe power, but users like feature that will cut software costs.

45 **Dell tries to woo** higher-end corporate customers with Xeon-based workstations.

FEATURES

MANAGING

50 **Year 2000 plans require** careful planning. Here are 10 points to keep in mind.

REVIEW CENTER

55 **Merced delays mean** more time for users to prepare for the upheaval. We suggest some steps to be prepared.

IN DEPTH

62 **Users get the goods** on one another with competitive intelligence programs.

IT CAREERS

64 **Survey shows** the hiring frenzy continues; staff sizes will increase 7% this year.

66 **Bay area draws** prime IT talent searching for the techie mecca.

ETC.

Company index 77
Editorial/Letters 28
How to contact CW 77
Inside Lines 80
Stock Ticker 76

Still waiting on Oracle8

▸ *Will next database version spur user action?*

By Stewart Deck

ORACLE CORP. may have been singing "Happy Birthday" to its year-old Oracle8 database recently, but there weren't as many voices joining in as the database giant had hoped.

With sales of Oracle8 still sluggish, Redwood City, Calif.-based Oracle plans to kindle user interest by divulging details about its Oracle8.1 release, code-named Emerald.

Due late this year, Oracle8.1 features include new messaging capabilities, improvements in parallel server technology, manageability upgrades, support for more types of data within the database and additional Common Object Request Broker Architecture interfaces.

But users and analysts are underwhelmed, saying that although the new features are interesting in the long run, they won't drive many immediate upgrades.

JEFFERSON STEELE

North Arundel Hospital's Tom Witmer: "Right now, [Oracle7.3 is] running well, so we don't want to mess with it too much"

NOT ENOUGH FOR A LEAP

"There's a lot [in Oracle8.1], but nothing earth-shattering," said Philip Sutherland, an analyst at Aberdeen Group, Inc. in Boston. "Taken all together, it's substantive. But not many users are going to jump just because it's there."

He added that new features such as the manageability options in Emerald are aimed at attracting Windows NT users, while the features in 8.0 were directed at Oracle's Unix users.

Tom Witmer, information systems director at the North Arundel Hospital in Glen Burnie, Md., spent last Thanksgiving feverishly working with a team to install an Oracle7.3 database to admit, locate and discharge patients after a 10-year-old legacy system crashed [CW, Feb. 23]. He said he doesn't plan to upgrade to Oracle8 yet. "Right now, it's running well, so we don't want to mess with it too much," Witmer said.

Even so, some of the new features that let administrators optimize queries more efficiently are attractive enough that the hospital now is beta-testing Oracle8.1. If the testing goes well, the hospital could upgrade as early as next spring.

Not everyone is ready to make the leap, though. "So far, there's nothing in the feature set that we need or feel compelled to put into production right away," said Alan Nugent, senior vice president and chief information officer at American Re-Insurance Co. in Princeton, N.J.

Nugent said that some of the new features described — especially those regarding native objects — did catch his eye, but not enough to make any changes.

"Database vendors have to find ways to continue to claim that their products are significantly different, and you see that in some of these features for high-end users," said Frank Gillett, an analyst at Forrester Research, Inc. in Cambridge, Mass. "As far as the nuts and bolts of getting the job done, you don't need this stuff." □

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Software snafu triggers order delays, loss

▸ *Snap-On system glitch leads to $50M dip*

By Thomas Hoffman

A NEW ORDER-ENTRY system intended to make it easier for franchisees to order Snap-On tools apparently did just the opposite, causing Snap-On, Inc. last week to report $50 million in lost sales for the first half of the year.

Software problems led to delays in order turnaround, prompting some frustrated dealers to order tools from rival manufacturers instead of Snap-On, said Alexander Paris Sr., president of Barrington Research Associates, Inc., a Chicago-based investment research firm that follows the company.

Paris said the ordering system uses enterprise resource planning software from The Baan Co. in Menlo Park, Calif. Baan officials couldn't be reached for comment.

The order-execution problems "have had a significant adverse affect on service levels, with a negative impact on sales, expenses and productivity," said Snap-On Chairman Robert Cornog in a statement. Company officials in Kenosha, Wis., declined to elaborate on the nature of the software problem.

Alan Biland, who replaced Larry Panatera as Snap-On's chief information officer in April, also declined to comment. Paris said it was unlikely that Panatera's departure was triggered by the computer problems.

"They hated to lose him," he said.

The computer snafu, combined with the impact of the Asian economic crisis, could drag the company's third-quarter earnings 10% below last year's figures.

BREAKING THE STREAK

Prior to the software problems — which will lower Snap-On's second-quarter earnings by 40% compared with the same period last year — the company had experienced five consecutive years of earnings-per-share growth.

Paris said Snap-On's order-fulfillment rate began to return to normal in June and that the Baan software bugs are expected to be "smoothed out" by late August. That should help bolster fourth-quarter profit and revenue.

Snap-On also announced plans to close five manufacturing plants, five warehouses and 40 small offices in North America and Europe as part of a restructuring effort. □

No rush to online help desks

▸ *Companies inching toward Internet-based troubleshooting*

By Kim Girard

ALTHOUGH A RASH of companies is pushing new Internet-based technology to improve help desk efficiency, most users are testing the waters before taking the plunge.

"We're still in the infancy, the pioneer stage," said Kurt Johnson, an analyst at Meta Group, Inc., a Stamford, Conn.-based consultancy. But Johnson said Meta's most recent research shows that about 12% of corporations use the World Wide Web to handle help desk inquiries — tripled from 4% last year.

ONLINE SUPPORT

At Haworth Corp., a Holland, Mich.-based furniture maker, information systems is setting up an intranet so users can track trouble ticket status and check on network problems. The system should help cut downtime, said Adam Bakker, the company's computer support coordinator.

However, Haworth still uses a homegrown client/server application on its three-person help desk, which services 12,000 users and handles about 700 service calls per week.

Most corporations aim to resolve 80% of calls over the phone to avoid sending technicians into the field, said Peter McGarahan of the Help Desk Institute.

"Our ultimate goal is to provide more self-help," Bakker said. Most corporations aim to resolve 80% of calls over the phone to avoid sending technicians into the field, said Peter McGarahan, executive director of the San Francisco-based Help Desk Institute. That's the appeal of the new Internet technologies.

Still, although some online search engines can help users, most companies aren't using customized knowledge management databases to help resolve system problems, he said.

Another online option is pushing information to users over the corporate intranet or letting them access trouble tickets. That has worked "somewhat" but hasn't replaced the phone, McGarahan said.

"I don't really see a lot of our clients getting into Web-based incident submission," said Jim Zeunik, a systems integrator at Alternative Resources Corp., an outsourcer in Atlanta.

Similarly, Pittsburgh-based Westinghouse Electric Corp. is sticking with client/server for now, said Christine C. Falconer, an information technology consulting analyst at the company. Westinghouse, which uses IBM's Troubleticket 6000, still relies on call tracking and benchmarking to improve service.

"It would be great to let [users] check their own tickets online," Falconer said. But now, she said, one of the best labor-saving functions at the company is a system that lets the help desk drop new passwords into users' voice-mail automatically.

But some observers say Web-based middleware could become a better way for help desk employees to manage their users' desktops, take their systems beyond call tracking and save on labor costs.

REAL-TIME TRACKING

Motive Communications, Inc., for example, offers an Internet-based server and end-user software that automates the support chain from call placement to resolution. The system lets an end user click on an icon that triggers a preconfigured diagnostic program. The diagnosis is sent to the help desk with detailed information about the problem and possible solutions. Users can track problem progress on their screens in real time.

Motive's system simplifies work for the help desk by letting workers install software and diagnose problems on their PCs over the Internet, said Alasdhair Campbell, director of Internet development for the Network Services division of MCI Communications Corp., which is testing the system to support 20 users.

The Motive server costs $50,000, with a per-seat license cost of $3,000.

Other vendors competing in this space include SystemSoft Corp. and Silknet Software, Inc. for user support. Several more are expected to announce similar products soon, Johnson said. □

Intel cuts workforce, slows production

By Kim Girard

IN ITS LATEST wave of cost-cutting measures, Intel Corp. said it will suspend manufacturing at two of 11 chip-making plants in Oregon for 10 days, sending 1,700 workers home this week.

Plants 5 and 15 at the company's Aloha manufacturing facility make chips based on 0.35-micron and 0.5-micron circuits, which have been displaced by denser technologies.

At the same time, the Santa Clara, Calif.-based chip giant is implementing a "voluntary separation" program, offering severance packages to help reduce its 65,000-person workforce by 3,000 workers, a goal announced in April.

Intel is expected to announce another round of layoffs of 3,000 people when company earnings are announced July 14, said Ashok Kumar, an analyst at Piper Jaffrey, Inc., a consultancy in Minneapolis. Intel didn't confirm such a plan.

But Intel spokesman Chuck Mulloy said the company has "not changed our number from the 3,000 number we announced in April."

FTC PROBE

The news comes after the Federal Trade Commission denied Intel's latest challenge for the agency to narrow and clarify its charges against the company of unfair trade practices. The FTC is investigating Intel for allegedly wielding monopolistic power against its competitors [CW, June 15]. Intel is accused of unfairly withholding critical intellectual property from Intergraph Corp., Compaq Computer Corp. and Digital Equipment Corp. during legal disputes.

Intel denied the charges, stating they are "based upon a mistaken interpretation of the law and the facts" and argued it had the right to withhold inform tion from companies attacking its semiconductor business. Intel also said the FTC has been unable to show alleged harm to the competition.

INTEL MOVES

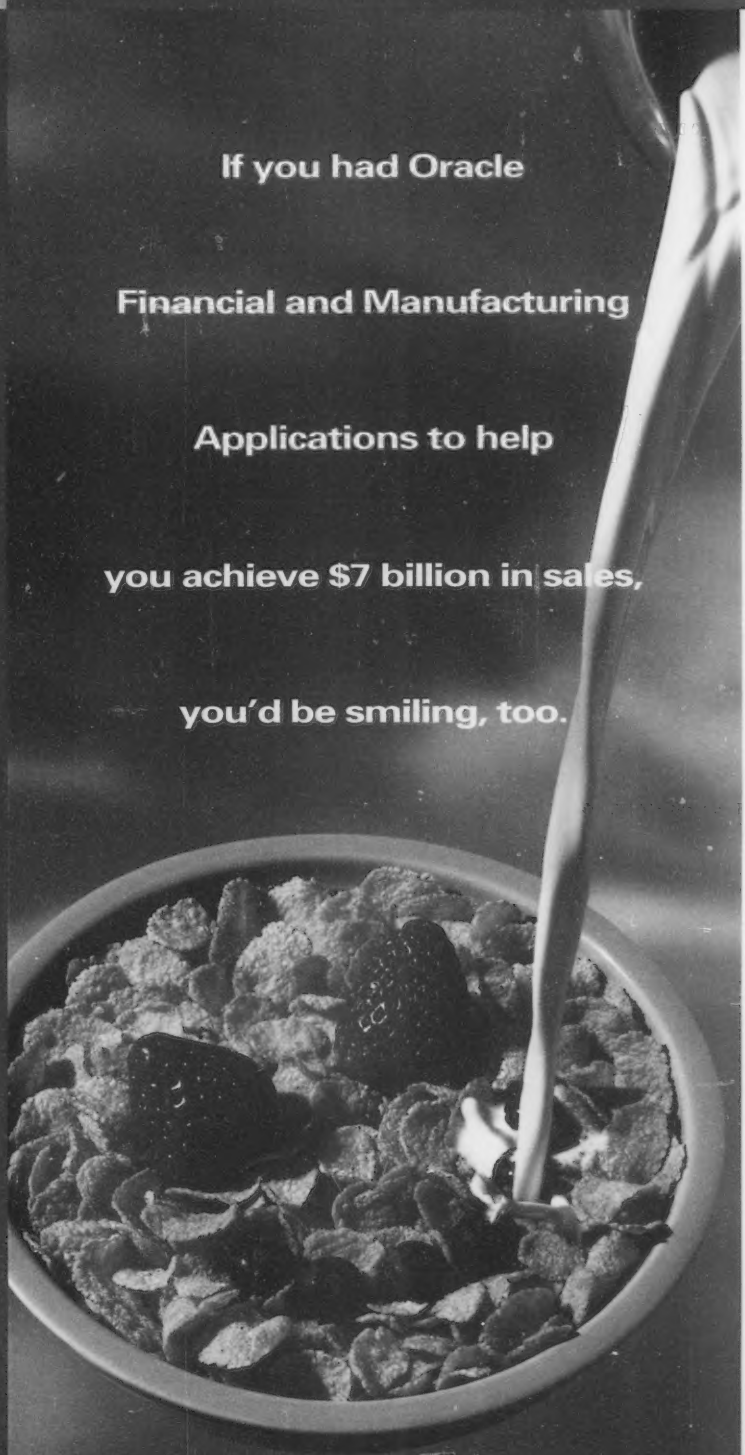
April: Announces it will eliminate 3,000 jobs

July: Says it will temporarily close two manufacturing plants in Oregon

August: Plans to begin laying off 650 employees at its Dupont, Wash., plant

Linley Gwennap, editor of "Microprocessor Report" in Sebastopol, Calif., said the "legal jockeying" is to be expected and will persist over the next year and possibly longer if Intel appeals an FTC ruling against the company.

For the average corporate PC buyer, the effect of the suit will be indirect, Gwennap said. "It won't stop Intel from shipping any products and won't cause prices to go down immediately, but the whole goal is to better enable competition in the processor market," he said. □



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E-mail marketing: Tread lightly

By Roberta Fusaro

MOST COMPANIES are extremely wary of using E-mail via the Internet as a marketing tool, for fear of being labeled a spammer. But users and analysts said it can be done — very carefully.

John Mozena, director of the spam-fighting Coalition Against Unsolicited Commercial E-mail, said direct marketing via E-mail could be done "ethically."

In fact, some companies are successfully using E-mail marketing by following the emerging rules for what might be called "ethical spam" (see chart).

Biztravel.com, a reservations and information site for independent business travelers, E-mails information about travel deals, trends and schedules to its members. The members must ask to be put on an E-mail distribution list called a listserver before information is sent.

"We don't collect names without users knowing it, and people can [take themselves off the list] at any time," said Pepper Evans, manager of business development at the New York-based online company.

Biztravel recently deployed UnityMail 2.0, an E-mail list manager from Huntsville, Ala.-based Revnet Systems, Inc., to track registered members and potential clients.

Today's listserver tools are more clever, users said, allowing them to collect information about clients who opt in to the system, sort that information by demographic characteristics and more accurately target the customers they are trying to reach.

CAREFUL MARKETING

- **Make sure solicitations posted to newsgroups, bulletin boards and chat rooms jibe with the forum's stated policies.**
- **Clearly identify online E-mail solicitation and provide a way for users to opt out of receiving material.**
- **Warn individuals in chat areas that any information disclosed there may prompt unsolicited messages.**

Source: Direct Marketing Association, New York

Examples of the tools include UnityMail from Revnet and ListCaster from Mustang Software, Inc. in Bakersfield, Calif.

The New York Yankees baseball organization also employs an E-mail marketing strategy. Users can register for "Fan E-mail" in the Clubhouse area of the Yankees World Wide Web site. Once visitors register, they can choose to receive information about promotions and events, such as the club's upcoming Beanie Baby Day.

Kara McGovern, manager of publications and multimedia at the Yankees, said the club has gotten a better response rate from fans by sending E-mail than by waiting for them to visit the Web site. For example, about 200 people logged on to a recent chat session with third-baseman Scott Brosius — an event that was advertised only via targeted E-mail.

If they walk the fine line between E-mail marketing and spam, companies can reap big benefits for little cost.

"It's a ridiculously cheap means of marketing — about $20 per month for an Internet connection," Mozena said, plus the cost of listserver software.

But the low cost of E-mail marketing is what makes it so ripe for abuse.

To avoid problems, Paul Hoffman, director of the Internet Mail Consortium in Santa Cruz, Calif., suggests following these steps: Make it as easy as possible for customers to cancel subscriptions, collect names only from people who say they want E-mailed information and push only relevant information. □

MCI, Sprint offer SNA migration tools

By Matt Hamblen

CONTINUING A TREND toward more one-stop shopping available from long-distance companies, MCI Communications Corp. last week announced a set of services to help large businesses modernize mainframe-based networks to process Web-enabled applications.

FRAME-RELAY NETWORKS

The Washington-based telecommunications company announced NetworkMCI Enterprise Blue, a set of services to help companies migrate old SNA to new frame-relay networks.

Today, more than 400 of the Fortune 500 companies use SNA networks, which run about 60% of all wide-area network traffic, analysts said.

MAINFRAME STANDARD

SNA was invented in 1974 as a mainframe network standard by IBM, which is joining with MCI and Cisco Systems, Inc. in this offering. Cisco, based in San Jose, Calif., is providing routers and other networking gear.

Sprint Corp. in Kansas City, Mo., announced a similar service in May, and MCI's offering is "not functionally different" from Sprint's, said Eric Hinden, an analyst at The Yankee Group in Boston.

But MCI officials said Sprint is reselling IBM's SNA migration services, whereas MCI made the migration internally.

Sprint and MCI are targeting the private-line marketplace dominated by AT&T Corp., analysts said.

More than $3 billion is spent each year in the U.S. to transport SNA traffic over private lines, and as companies enable their mainframe networks for the Web, that market could reach $9 billion, Hinden said. □

Smart users need more help

By Patrick Thibodeau

WORKERS TODAY are a lot smarter about PCs and the Internet, but that knowledge can be a mixed blessing for the folks running technical support.

On the one hand, technical support managers say, wiser users need less hand-holding to operate a PC or navigate a corporate intranet. But those same users also may be more apt to download software and fool around with a system's configuration.

Users are indeed getting smarter about technology, according to a new report on Internet skills by MCI Communications Corp. in Washington.

Users age 40 to 60 and 24 to 39 fared the best, MCI said, with an average score of 84 on a scale of 100. Women did a little better than men, averaging 82, vs. 80 for male test-takers.

GREATER CHALLENGE

Marie DiRuzza, the help desk supervisor at WPI in Worcester, Mass., said end users' increased knowledge has made her job more challenging.

"Sometimes we get more complex questions than we would have gotten normally," she said. But there is an upside: People are more familiar with computer terminology, she added. □

Microsoft case shifts focus

By Kim S. Nash

FEDERAL AND STATE lawyers will slightly shift tactics in their antitrust case against Microsoft Corp. after a recent appeals court ruling in a related case.

Government lawyers now are downplaying their charge that Microsoft illegally tied its Internet Explorer browser to the market-leading Windows operating system, an argument that didn't work with the judges hearing a separate dispute over a 1994 consent decree.

When the broader antitrust trial starts Sept. 8, the government instead will emphasize Microsoft's exclusionary contracts with Internet service providers, said Steve Houck, lead antitrust lawyer for the state of New York, one of 20 states suing Microsoft for alleged antitrust violations.

"We're still pursuing everything in the complaint," Houck said. But those contracts are "the principal means of distribution of browsers," he said. Instead of pursuing the "tying" issue as illegal behavior by itself, the government will make a subtle change in its position.

It will argue that Microsoft, as a monopolist in the PC operating system market, can't engage in some business practices — such as bundling products — that nonmonopolists sometimes can, Houck said.

APPEALS COURT RULING

The tactical changes come after the U.S. Department of Justice and 20 state attorneys general digested last month's appeals court ruling that said the integration of Windows 95 and Internet Explorer doesn't violate the 1994 antitrust settlement [CW, June 29]. Microsoft vigorously denies any antitrust law violations. □

Corrections

Due to reporting errors, the following clarifications should be made to *Computerworld*'s May 18 story about Timberjack. The two companies mentioned as Timberjack customers — Weyerhauser Co. and Georgia-Pacific Corp. — aren't direct customers. Edmonton, Alberta-based Coneco Equipment, Inc. and Pioneer Machinery, Inc. in Lexington, S.C., are Timberjack customers.

Timberjack has definite plans to install an enterprise resource planning (ERP) system at its Woodstock, Ontario, site beginning this September and at its sites in Finland and Sweden next year. The story reported that those sites would install the software "as needed."

Finally, a quote attributed to Timberjack's Phil Doble inadvertently claimed it takes Timberjack 18 months to build a new machine. It actually takes up to three years to build a single machine. By implementing an ERP system, Timberjack hopes to reduce that lead time by six months, not to six months.

Computerworld regrets the errors.

Sun buys piece of app server action

By Carol Sliwa

CORPORATE USERS tracking the hot application server market will find the pace of consolidation picking up these days.

Sun Microsystems, Inc. last week became the latest major vendor to join in, acquiring privately held NetDynamics, Inc. for an undisclosed sum. Several sources estimated the transaction at $160 million to $170 million, but Sun officials would only say it was a stock transaction.

With the NetDynamics acquisition, Sun gains a key piece of middleware technology needed to build complex applications that give users access to back-end databases through World Wide Web browsers. Because those applications increasingly rely on Java technology, the middleware is a natural fit for the Mountain View, Calif.-based creator of Java.

TIES TO SUN

"I can only see benefits," said NetDynamics user Ron Engle, a senior systems integration engineer at NationsBank Corp.'s global finance division in Chicago. "NetDynamics now will have closer ties to Sun via the Java engine and any new technologies that are based on Java."

Sun isn't the first to scoop up a hot application server vendor. Netscape Communications Corp. last year bought Kiva Software, Inc. in a $180 million stock transaction [CW, Dec. 1]. Analysts said they expect more large vendors to follow suit. "It seems like having a transaction server is a 'gotta have it' among the big players in the game," said Martin Marshall, an analyst at Zona Research, Inc. in Redwood City, Calif. Marshall said Bluestone Software, Inc., WebLogic, Inc. and GemStone Systems, Inc. are among the "potential bridesmaids for other companies."

Application server software and tools help companies build and run often-complex, high-transaction applications that link Web-based clients to back-end databases. Sitting in the middle tier, the application server houses the business logic, giving developers a central place to make changes. IBM, Microsoft Corp., Netscape, Oracle Corp. and Sun are expected to be the major players in the $300 million market, analysts said. Meanwhile, corporate customers should be cautious before choosing products from one of the smaller application server vendors because of the market turmoil, analysts said.

One red flag for corporate customers regarding the Sun/NetDynamics deal is the fate of support for Microsoft's Windows NT Server. "A lot of NetDynamics' customers run [their application server product] on NT. Sun is saying that they're going to continue to support all those platforms, but that's something to keep an eye on," said Philip Costa, an analyst at Giga Information Group in Cambridge, Mass.

Engle said because so many NetDynamics users run the application server on NT, he figures Sun "will have to continue down that road, or they'll lose a large part of their market share." □

Reorg results in 200 layoffs

Sun last week announced that 200 jobs are being eliminated as a result of a companywide reorganization that took effect last week. "We're consolidating sales forces — specifically the software and OEM sales forces of Java software and the Solaris software group," a Sun spokeswoman said.

The company reorganization, announced in April, scrapped its five largely autonomous operating companies in favor of seven business divisions. Sun said it hoped the realignment would speed the company's time-to-market and product development processes. — Carol Sliwa

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In U.S. first, court convicts female hacker

By Laura DiDio

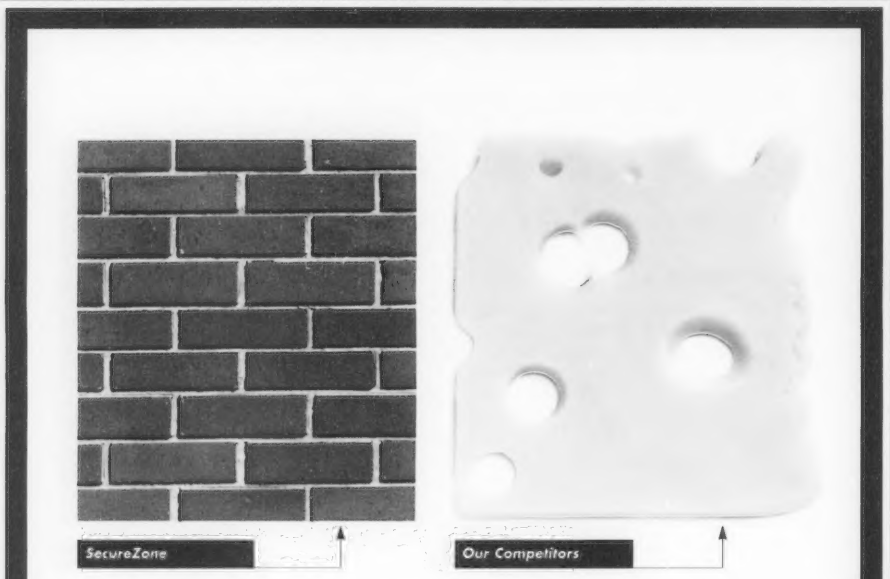
THE FIRST WOMAN convicted of computer hacking in the U.S. was sentenced last month for trashing a U.S. Coast Guard personnel database.

The woman, a former Coast Guard employee, was sentenced to five months in jail plus five months of house arrest and was ordered to pay $35,000 restitution for destroying information and crashing the system last year.

In March, in U.S. District Court in Washington, Shakuntla Devi Singla, 43, of Fairfax Station, Va., pleaded guilty to accessing a federal computer without authorization and intentionally causing damage. It took 115 Coast Guard employees, including network administrators, more than 1,800 hours to restore the lost data, a spokesman for the U.S. District Attorney's office in Washington said. The recovery effort cost $40,000.

Singla used another employee's password and identification to gain remote access to the Coast Guard's personnel database from her home last July, according to Lisa Martin, a spokeswoman for the FBI. Singla then deleted personnel information, including pay, promotions, awards and employee transfers from the database, Martin said. "It's the first time a woman has been convicted of hacking," she said, "though women have been charged with hacking before."

Singla couldn't be reached for comment. But her attorney, Nancy Luque of Washington, said Singla acted out of frustration that her attempts to report contractor improprieties were ignored. □



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Businesses to spend more on Web technology

By Patrick Thibodeau

SPENDING ON NEW World Wide Web site technology and services will rise dramatically during the next several years, especially as businesses tie legacy systems to online systems, according to a new study by ActivMedia, Inc., a market research firm in Peterboro, N.H.

Based on a survey of 2,500 Web site managers in mostly small to midsize firms, the ActivMedia research estimated that spending on Web site technology and services will reach $1.2 billion this year, about $3.6 billion next year and then climb to $24 billion by 2002.

Web sites that focus on consumers will spend an average of $10,000 this year to automate their systems, while business-to-business sites will spend an average of $35,000. The firms that will spend the most on Web development are those that want legacy data online.

Those companies "are now fully understanding the scope and importance of integrating electronic commerce into their legacy systems," said Chris Anne Wheeler, director of information services at ActivMedia. □

SHORT

Microsoft pays for IE name

Microsoft Corp. last week agreed to pay $5 million for the rights to the Internet Explorer name to settle a trademark lawsuit filed by the developer of another browser with the same name. The dispute arose because SyNet, Inc., a Chicago-based Internet service provider now in bankruptcy, began distributing its own Internet Explorer browser in late 1994, before Microsoft released its product with the same name in April 1995.

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FRANKLY SPEAKING

Payback time is coming

FRANK HAYES

Maybe I'm the suspicious type. But I'm beginning to wonder why all this money is pouring into IS shops — and when you'll have to start paying it back.

The most recent evidence of a greenback gusher comes in reports that newly minted college graduates with MIS degrees are pulling in offers of $40,000 and more. Those offers aren't from hot Silicon Valley companies or Wall Street trading houses and aren't for top-of-the-class overachievers from Stanford or MIT.

Nope, $40,000 is the going rate for reasonably smart kids from reasonably good schools — so long as they've got a good grasp of one or more hot new technologies.

Why? On the surface, it's simple: supply and demand. The demand for those hot technical specialties exceeds the supply of available specialists. If you don't pay the going rate, someone else will.

But wait. Those kids aren't radically smarter or dramatically more productive than the kids you hired three or four years ago — just a lot more expensive.

And lots of shops also give special raises to existing IS staffers so their salaries don't fall below those of the new kids on the block. But no one expects quality or productivity in those IS departments to improve by a miraculous 15% or 20% compared with a couple of years ago. In other words, those bigger payrolls aren't investments, they're just higher costs.

Those bigger payrolls aren't investments – they're just higher costs.

And it isn't just payrolls that soak up the money flowing into IS shops. Fixing your systems' year 2000 problems sucks up lots of money, too, but you probably don't expect any return on that "investment" — besides the ability to stay afloat after Dec. 31, 1999.

Now here's what makes me suspicious: If your company's manufacturing or distribution costs suddenly jumped, with no improvement in quality or efficiency, management would move fast to cut those costs. If raw-material prices or freight bills suddenly shot up, everyone upstairs would be pounding the table, demanding alternative sources or cheaper shipping methods.

So why do you suppose your bean counters and top executives have OK'd recent IS budget increases — including those pumped-up payrolls? I doubt it's because they view IS as a special case, immune from the usual rules about uncontained costs.

No, I figure they *do* expect a payback on that increased price tag. Either IS will pay it back in the form of increased profits because of improved systems — or management will look for a cheaper way to acquire IT services, and you'll be working for an outsourcer or on the street.

Is that fair? No, not at all. But it's real. And no matter how many assurances you've gotten that your executives understand IS labor costs and year 2000 issues, you better not believe them. That bill *will* come due — and when it does, you better be able to pay up.

SQUEEZE HARD

There's only one way to do that: squeeze a lot more return out of your real technology investments. Cut time from your schedules to get new applications into users' hands faster. If that means dropping more than a few features in the first draft, so be it. Nobody starts to make money from the system until it's in production.

Nobody makes money from your electronic-commerce systems until they're in place, either. Or your big packaged software systems. Or your customer-service automation. Now is no time to be timid. Get them up, running and paying for themselves and that fatter payroll fast.

Because I suspect either they'll pay — or you will. □

Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes @cw.com.*

SHORTS

Andersen sued over SAP project

Bankrupt Fox Meyer Corp. is looking to recoup $500 million from Andersen Consulting, which it is suing for a botched SAP software implementation that Fox Meyer says contributed to its downfall. Bankruptcy officials for the former drug company filed the suit in state court in Houston last week. Fox Meyer, which was based in Carrollton, Texas, bought SAP AG's R/3 software in 1993 and contracted with Andersen to install it in early 1994. In 1996, the company took a $34 million charge against earnings for the project. Later, Fox Meyer filed for bankruptcy. In a prepared statement, Andersen Consulting vigorously denied any responsibility for Fox Meyer's demise, according to *The Wall Street Journal*.

A 'net address for every home

The U.S. Postal Service wants to take control of the .us domain. Postal officials asked for endorsements of the idea at a conference in Reston, Va., last week. Using a state and nation extension on a domain name (for example, *www.computerworld.ma.us*), would alleviate trademark disputes that have arisen over .com and other domain extensions, proponents said. Opponents include domain name registrants who are worried that the Postal Service idea will undercut their World Wide Web-based brands.

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Prime contractor: Printrak International, Inc., Anaheim, Calif.

Terms: $6 million

Highlights: Printrak will upgrade the capacity of the Mounties' automated fingerprint identification system and provide a search subsystem and workstations with bilingual (English and French) user interfaces. The upgrade also eliminates problems associated with the year 2000 date change.

Who has 'e-business' trademark?

IBM was due in an Amsterdam court Friday over the use of its "e-business" logo, which a two-person consulting company called E Technologies Associates LLC claims violates a trademark it registered before IBM did. IBM uses the lowercase "e" encircled like the @ sign to identify its suite of electronic-commerce software products and services. E Technologies, located in Paris and New York, is seeking a permanent injunction barring IBM from using the logo. IBM said it acquired prior rights to the trademark even though E Technologies registered it first.

Netscape kills Javagator

Netscape Communications Corp. last week officially sounded the death knell for its Java Navigator, dubbed Javagator. More than a year ago, Netscape co-founder Marc Andreessen said the company would write its Web browser and entire Communicator client in Java. He declared the Java Communicator dead earlier this year and officially killed the Javagator last week. The Mountain View, Calif., software maker laid off many of its Java programmers earlier this year.

Microsoft fix No. 1 . . .

Microsoft Corp. plans to post a patch this week for a security glitch that, in rare cases, could pop up in files created on Microsoft Office 98 for Macintosh. Documents created in Excel 98, Word 98 and PowerPoint 98 could contain fragments of data from previously deleted files that, though invisible when using the programs themselves, could be viewable when opened with a text editor. The Mac Office 98 patch will be at *www.microsoft.com/macoffice/*.

. . . and No. 2

Microsoft acknowledged last week that some PCs, particularly older models, may require updated drivers or system BIOS before they can be upgraded from Windows 95 to Windows 98. A Microsoft official said the company is working with several computer makers to get the new drivers and BIOS posted on their respective Web sites in the next several days. Manufacturers affected include Gateway, Dell Computer Corp., Compaq Computer Corp., IBM and Toshiba America Information Systems, Inc.

SHORT TAKES **Corrupt data in a customer database that created errors in a software process has been identified as the cause of a wireless phone outage that knocked out service to 90% of 420,000 Pacific Bell Mobile Services customers in California and Nevada on June 26 and 27. . . . The U.S. Department of Justice last week approved a proposal by the Securities Industry Association to collect and exchange information about vendor products and system tests to help the securities industry fix its year 2000 problems. . . . . Federated Department Stores, Inc. in Cincinnati is spinning off its Macys.com online retail site as a separate, free-standing subsidiary. . . . The Baan Co. co-founder and CEO Jan Baan is stepping aside, letting company president Tom Tinsley take over, the Dutch vendor announced Friday. . . . Stamford, Conn.-based Gartner Group, Inc. last week introduced software designed to help organizations assess their year 2000 risks.**

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Unleash the Power of Information

Cabletron breaks out network service

▸ *New unit to focus on Spectrum development*

By Bob Wallace

CABLETRON SYSTEMS, INC. last week created a separate network management unit to both enhance its flagship Spectrum system and develop additional versions for users with midsize and small multivendor networks.

The Rochester, N.H., networking company's new Spectrum Software Solutions and Services Organization — providing a dedicated sales, marketing and engineering force for the products — signals a renewed emphasis on network management. Cabletron has long focused the lion's share of its resources on selling switches, hubs, routers and access equipment.

The vendor's Unix-based Spectrum Enterprise Manager has been widely deployed primarily because of its ability to manage networking hardware from Cisco Systems, Inc., 3Com Corp., Bay Networks, Inc., IBM, Xylan Corp. and others. About 50% of new Spectrum sales are to non-Cabletron users.

The unit will reportedly develop small and medium-size versions of the high-end Spectrum Enterprise Manager with different prices. Another focus will be on developing a new release of Spectrum Element Manager, a PC-based system for Cabletron equipment.

The wider range of pricing options will be welcome news to users.

"We've looked at Spectrum Enterprise Manager and love it, but the biggest reason we haven't gone with it is price, as we estimated it would cost $60,000 to $70,000 to implement," said Sean Gilbert, manager of information systems at Cardservice International, Inc., a credit-card authorization company in Agoura Hills, Calif. "A lower-priced version would eliminate that problem."

Cardservice currently uses Spectrum Element Manager, and Gilbert was pleased to hear that developing a new release will be a top priority of the unit. "It's an easy-to-use product, and I'd love to see them continue to develop it," he said.

OUTDATED

The new unit also needs "to jump-start [Cabletron's] multivendor management efforts because what they have for Cisco, 3Com and Bay is pretty dated," said John Morency, an analyst at Renaissance Worldwide, Inc. in Newton, Mass.

Former Intergraph Corp. executive Ken Sullivan will head the new unit. Cabletron, which plans to announce the new unit soon, declined to comment. □

Router speeds Ticketmaster calls

By Matt Hamblen

IF YOU ORDER CONCERT tickets by phone the day after The Cranberries announce a North American tour, you might expect to be put on hold.

But Ticketmaster Ticketing, Inc. is trying to eliminate waiting with new networking gear it installed four months ago.

Now when callers deluge local Ticketmaster ticket agents, they are automatically transferred to hundreds of other agents throughout the nation as demand requires.

HATE TO WAIT

Ticketmaster officials won't guarantee a maximum waiting time, but said the average time to answer a call has been reduced with use of a network router by Aspect Telecommunications, Inc. in San Jose, Calif. They would not say how much time was saved.

But even if Ticketmaster cuts out just 30 seconds of wait time, it will boost customer satisfaction, analysts said. "Ten to 30 seconds' wait is not good in a call center," said Robert Mirani, an analyst at The Yankee Group in Boston.

Routing calls quickly to available agents has long been a priority of many industries, such as airline ticket reservation call centers and customer help desks for product manufacturers. But doing so has typically cost millions of dollars, analysts said. Aspect's router starts at $250,000.

Ticketmaster's Brian Delaney: Aspect product flattens call spikes

Ticketmaster's router is in Denver and operates inside the long-distance network of Sprint Corp. in Kansas City, Mo., Ticketmaster officials said. The router now transfers calls to eight call centers in the U.S. but should be expanded to all 29 call centers, reaching 4,000 agents.

"Ticketmaster frequently experiences high-surge call volume when there's an announcement about an upcoming tour going on sale, and this product enables us to better distribute the call volume across the network and flatten out spikes," said Brian Delaney, vice president of call center operations at Ticketmaster in Los Angeles.

Before using the router, Ticketmaster had to manually analyze which call centers were available, then contact a long-distance carrier to handle the volume to that city. Now, the Aspect router continually does that analysis and sends the calls, Delaney said.

Ticketmaster handles 60 million phone calls per year and as many as 30,000 entertainment events a month.

Delaney said Ticketmaster picked Aspect after a three-month study, partly because it had worked with the vendor before and expected less training time and an easy transition.

Mirani said Aspect is making a run at the best-known vendor in the call center network business — Geotel Communications, Inc. in Lowell, Mass. □

Compaq readies Web-based management

▸ *Insight Manager to track network devices*

By Patrick Dryden

COMPAQ COMPUTER CORP. will fully embrace Internet standards in the next generation of its systems management software.

With the XE version of Insight Manager, slated to ship next month to a few dozen beta testers, information systems managers will be able to find and monitor not only Compaq gear, but also network devices, servers and PCs from other vendors. And operators can run this tool and manage those nodes anywhere via a Web browser.

As a proponent of Web-based Enterprise Management standards, Compaq wants to lead the "LAN management charge," said Theo Forbath, a consultant at Northeast Consulting Resources, Inc. in Boston.

The biggest improvement to Insight Manager is the fully interactive World Wide Web interface, analysts and users said.

"Web access will make it far easier for us to get to our Compaq servers," said Mark Boss, a senior client/server analyst at Baptist Healthcare in Louisville, Ky.

At Countrywide Home Loans, Inc., the IS staff should get "quicker access to systems information from virtually anywhere," said Jerry Gross, managing director and chief technology officer at Countrywide in Calabassas, Calif.

FILTER FEATURE

Filtering is another feature coming in the XE version. IS managers can configure the tool so that operators can monitor the application servers needed by one business unit, for example, or focus on newly supported devices such as routers.

Compaq's embrace of unified management is overdue, said Laurie McCabe, service director at Summit Strategies, Inc. in Boston. When Insight Manager XE ships at the end of the year, it should offer midsize businesses a way to integrate management chores without having to tackle a costly and complex framework implementation, she said.

The tool's extended coverage "sounds interesting, but it's late," said Boss, who already manages a mix of devices through OpenView software from Hewlett-Packard Co. □

Tool eases IP address management

By Patrick Dryden

CISCO SYSTEMS, INC. last week shipped the first tool in a line of network management software that promises ways to help IS managers apply service and security policies to business objectives.

The Network Registrar tool, developed by American Internet Corp. in Bedford, Mass., simplifies the process of matching user names with their network addresses.

Cisco officials said they plan to link Network Registrar with the upcoming Active Directory from Microsoft Corp. and with tools acquired recently to manage switches and service levels.

Network Registrar provides scalable servers for handling domain names and IP addresses as well as links to other management platforms and directory services. That means users in established groups can be assigned a class of service when they sign on to the network.

CRUNCH QUELLED

Boston College worked with American Internet a year ago to overcome the chaos of assigning network access to students, faculty and staff each semester. Businesses face this change management challenge on a smaller scale every day, when personnel changes.

"The support crunch was incredible when 8,000 students returned to campus in one weekend and had to type in the address for their Ethernet interface," said Shannon Hembrough, server administrator at Boston College.

Each had to install access software themselves, and mistakes were common.

Network Registrar's automation slashed calls to the help desk by half during the first move-in period, Hembrough said. And it ensured correct address assignments required for security audits.

"Like any business, we have to trace harassing E-mail and attempts to break in to systems," she said.

Both Cisco and American Internet offer Network Registrar for Solaris or Windows NT servers. Pricing starts at $7,000 plus $2 to $5 per managed address. □

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Financial firms find niche for thin clients

▸ *They cite less downtime, easier maintenance*

By April Jacobs

WHEN IT STAFF at Reilly Mortgage Group, Inc. wanted to set up a new employee's PC, they could count on the process taking up to a full day.

Between loading productivity and custom business software, installing network and PC cards, putting the PC on the user's desk and testing it, the process was nothing short of arduous.

The whole shebang now takes 30 minutes when the user has a network computer, said Gale Sommers, senior vice president and chief financial officer at the McLean, Va., company.

"What I saw us accomplishing was long-term cost savings in the areas of maintenance, hand-holding and setup associated with owning a PC," Sommers said. The company uses IBM Network Stations in its loan servicing department.

What attracted Reilly Mortgage to thin clients is also attracting others in the financial community. They say the benefits of thin-client computing include minimal downtime, consistent application performance, long hardware life cycles, easy deployment of applications and simple maintenance and administration.

In a thin-client environment, all or most processing takes place on the server, while the client box acts as a graphical user interface.

Gartner Group, Inc. in Stamford, Conn., estimates that companies can save at least 40% in support and maintenance costs by doing most of their processing on the server.

Reilly Mortgage's Gale Sommers says network computers helped save money in the firm's loan servicing division

EYEING NCs

Analysts said corporate users, including those in the financial sector, are looking harder at network computers for simpler administration and setup.

Jason Ream, a financial services analyst at Mountain View, Calif.-based G2R, Inc., said he believes the use of thin clients in the financial community "is growing because there are lots of situations where you can go with thin clients and achieve some savings." Those include customer service, loan services staff and portfolio managers pulling information from various sources to their desks.

"The arguments for thin clients are very compelling," agreed Roger Kay, an analyst at Framingham, Mass.-based International Data Corp.

"You have cheaper clients, faster servers and network traffic that is manageable, and knowledge about it is bringing more converts into the fold," he said.

Some companies are also using PCs as if they were network computers, meaning that all application processing takes place on the server.

For example, at Lyon Credit Corp. in Stamford, Conn., portfolio managers across the country used to wait up to 30 minutes to receive information they needed to manage customer portfolios. Now that happens almost instantaneously, according to CFO Tony Kinsley.

Credit Lyon, a division of French giant Credit Lyonnais, is using WinFrame thin-client software from Fort Lauderdale, Fla.-based Citrix Systems, Inc.

POINTS FOR EFFICIENCY

"The business value here is efficiency," Kinsley said. "It's people not being tied up waiting for their PC so they can do their work and have as accurate and up-to-date information as immediately as they need it."

At Bombardier Capital Mortgage Division in Melbourne, Fla., systems managers began installing 300 thin clients a year ago. Al Sorheim, vice president of planning and systems, said he thinks estimates that put a $6,000 savings per desktop over a five-year period are fair.

"We have had virtually no downtime or maintenance," Sorheim said. He added that the centralized system control offered by network computers also prevents users from adding software that needs extra support from his staff. □

Budget pays unlicensed software bill

By Laura DiDio

BUDGET RENT-A-CAR CORP. last week agreed to pay $400,000 to the Business Software Alliance (BSA) for unlicensed software installed on its corporate computers. Budget is the sixth company in the past month that has had to ante up money to settle disputes with the BSA, a Washington vendor alliance that works to reduce the illegal use of unlicensed software.

The BSA contacted Budget following an anonymous call from a Budget employee to the BSA's toll-free tip line, according to a BSA spokesperson.

Spokesmen for both the BSA and Budget said the car-rental agency cooperated with the BSA on a voluntary audit of computers at three sites: Carrollton, Texas; Orlando, Fla.; and Budget's Lisle, Ill., headquarters.

John Costanza, Budget's vice president of information systems, said in a prepared statement that the car-rental company has used the experience "to strengthen our policies and procedures surrounding software licensing documentation." Much of the problem, he added, "was attributable to inadequate document-retention practices, which we have corrected."

Besides the settlement payment, Budget also agreed to delete all unlicensed copies of software programs and purchase any additional software necessary to comply with copyright laws.

PIRACY LOSSES MOUNT

Last year, the BSA settled copyright claims with about 50 U.S. companies and 500 companies worldwide, the BSA spokesperson said. That is up from 37 in the U.S. and 420 worldwide the previous year.

Worldwide losses from software piracy totaled an estimated $11.4 billion last year, up from $11.2 billion in 1996, according to a newly released report on global software piracy by the BSA and the Software Publishers Association.

According to the report, four out of every 10 software applications worldwide were stolen last year. The U.S. had the highest total dollar losses to software piracy of all countries, at $2.8 billion. □

Microsoft owns up to buggy software with user service

By Laura DiDio

PROMPTED BY USER demands that it respond more proactively to bugs in its software, Microsoft Corp. last week implemented a new list server that will notify businesses immediately of security flaws in all Microsoft software.

Users can subscribe to the Microsoft list server free of charge by registering on Microsoft's World Wide Web page at *www.microsoft.com/security*, said Karan Khanna, security product manager for Windows NT.

Although list servers to disseminate security flaws aren't unheard of, the fact that Microsoft took this action now underscores that the Redmond, Wash., software company is grappling with an ever-increasing array of software glitches.

In the past month alone, BugNet, an online service in Sumas, Wash., devoted solely to publicizing security alerts, has posted 124 bug alerts on Microsoft products.

"No other vendors even come close. And Microsoft has sometimes been lax about notifying users of a problem and getting the fix out," said Bruce Brown, editor and publisher of BugNet.

THE WORD IS OUT

Neil MacDonald, an analyst at Gartner Group, Inc. in Stamford, Conn., agreed, but noted that Microsoft's track record has gotten better in the past year (see chart). "Two years ago, I gave them very poor grades for bug responsiveness. They're better now but can still use improvement. The list server should help get the word out more quickly," MacDonald said.

"I hope so," said Phil Easter, technology strategist at Greyhound Lines, Inc. in Dallas. "Like everyone else, we have a good amount of Microsoft software, and if there's a bug, I want to know about it right away. We don't take chances with network security."

MacDonald attributed the increase in glitches in Microsoft products at least partly to the fact that the company's software code — especially for the Windows NT operating system — is growing fatter and more complex.

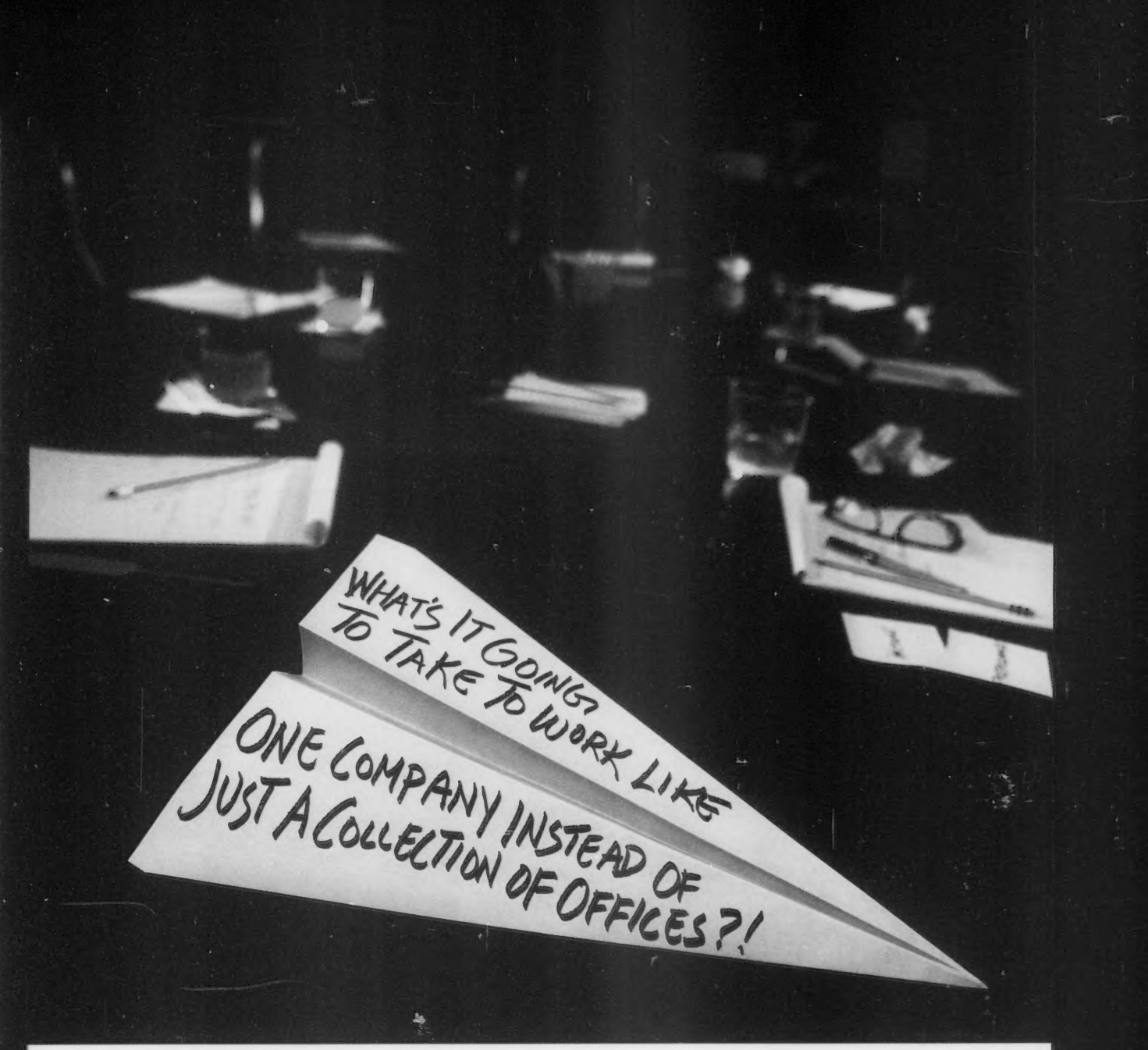
"The more code you have, the more likely you are to have bugs. And Microsoft's code is growing. The current NT 5.0 beta is about 32 million lines of code. And in the past, Microsoft has even shipped buggy service packs, which are supposed to provide fixes for the bugs in its software," MacDonald said.

Separately, Microsoft posted a fix to its Internet Information Server Versions 3.0 and 4.0 last Thursday that closes a security hole. Without the fix (at *www.microsoft.com/security*), scripting information on a Web server is accessible to anyone via Web browsers, which could help hackers enter the server, BugNet reported. □

A new study gives Microsoft better security grades than two years ago, but it still needs improvement

	1996	1998
Support for NT Server 3.51 and 4.0	A	A+
Notifying users of security flaws	F	C
Web page usefulness	D	B+
Responding quickly to problems	D	A-
NT source code availability	C	B-
Ingrained NT security	D	C
NT security training	F	C
Full disclosure of security problems	D	C

Source: Gartner Group, Inc., Stamford, Conn.



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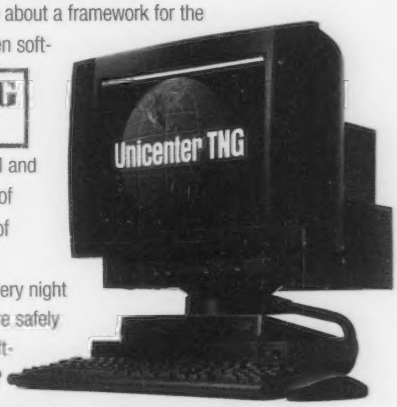

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SAP AG discloses plans to beef up

▸ Vendor combats critics over cost, complexity

By Joseph E. Maglitta
MADRID

WHETHER LISTENING in English, Spanish, German or one of a half-dozen other languages, more than 8,000 users from 56 countries attending SAP AG's Sapphire 98 conference here last month heard the same message: SAP is trying to get faster and ever wider.

Not content to rule the enterprise systems market, the world's fourth-largest software company continues its global campaign to infiltrate entire corporations and industries with what one analyst called "Teutonic persistence and precision."

Though the annual European gathering lacked blockbuster announcements, new software for business planning, procurement, retailing and manufacturing added momentum to SAP's steady stream of upgrades and expansions (see related stories on this page).

And many of the more than 400 speakers at Sapphire reflected efforts by SAP to blunt longtime criticisms that its products are expensive and time-consuming to install.

Officials from more than a dozen leading European companies — including Nokia Telecommunications, Volvo AB, Crosfield BV and Schenker International — said they completed fast-track R/3 implementations in four to 12 months. In the past, many installations took 36 months or longer.

Typical was the Dutch Ministry of Justice. Using the Accelerated SAP (ASAP) rapid deployment scheme, it took only seven months to replace five accounting systems with an integrated child support collection system, said program manager Carl Adamse. A full R/3 rollout took just 15 months, he added.

Likewise, Belgium's national social service agency for infants and young children installed four R/3 modules in less than four months, said project manager Rudi Van Nievweemhove.

Other managers agreed that ASAP's commonsense tools helped kick-start projects and stopped concern over trivia.

Crosfield, a Dutch chemical company, struggled with R/3 before latching on to ASAP.

"At first, we felt like we were on a donkey trying to get up a hill," said J. M. Vranken, Crosfield's information technology manager.

SAP AG continues its global campaign to infiltrate corporations and industries with what one analyst called "Teutonic persistence and precision."

Even so, experienced R/3 hands said even fast methodologies aren't magic. "Pain comes with the project," said Mike Jaques, principal SAP project manager at Origin, Europe's largest SAP consultancy. "You can't avoid it."

SNEAK PEEK

In a preview of September's U.S. Sapphire event in Los Angeles, SAP outlined these additional speed-up strategies:

- Componentization. Henning Kagermann, SAP's co-chairman, said the vendor's plan to decouple new software modules from the core R/3 system will speed deployment and give users more flexibility.

Laurent Lachal, a consultant at Ovum Ltd. in London, said continuation of SAP's initial forays into components will be crucial for the company in the next five years. The trick, he and others agreed, will be to answer marketplace demand for modular software without undercutting the integrity and stability valued by R/3 users.

- Boxed systems. SAP is expanding hardware and software choices for its preconfigured Ready-to-Run R/3 bundles for smaller users. New platforms include IBM's AS/400 systems running the DB2/400 database.

Moreover, Kagermann said SAP has created a Simplification Group in Palo Alto, Calif. Its mission is to speed deployment, primarily for medium-size customers.

- Tighter consultant oversight. Improved oversight and quality control of certified partners also will speed deployment, company officials said. Users in the past have complained about consultants working slowly to up their fees.

Now, Kagelmann said, an SAP auditor will visit each project four to five days per year to ensure that quality and speed guidelines are met. □

IN THE WORKS

SAP also announced these products at Sapphire Madrid:

Product	Key function	Shipment date
R/3 Release 4.5	Industry-specific manufacturing capabilities	General release in Q2 1999
SAP Retail Store	Browser-based retail management	First shipments in Q3 1998
Manager's Desktop	Human resources analysis software	First shipments by year's end
SAP Euro	Supports the upcoming common European currency	Available now via free upgrade

Market for 'net-based procurement software lures SAP into vendor pack

SAP and other packaged application vendors are moving into the emerging market for Internet-based procurement software that lets users buy office supplies and other products online.

At Sapphire Madrid, SAP officials said a procurement module is in the works for its R/3 suite. The software, which will use a World Wide Web browser user interface to automate supply requisitions and payments, is to ship by year's end.

SAP's move follows late-spring releases of similar procurement technology by SQL Financials International, Inc. and Geac Computer Corp.'s Geac SmartStream division, both in Atlanta.

For users, online procurement holds out the lure of chopping purchasing costs by reducing administrative paperwork and limiting employees to buying products from designated suppliers that offer volume discounts.

Large companies, such as Chevron Corp. and Federal Express Corp., have started implementing Internet-based procurement products developed by Netscape Communications Corp. and other electronic-commerce vendors [CW, June 15].

SAP's arrival on the online procurement scene should help spread the technology, said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass.

But widespread use may still be as much as a year away because of the newness of the technology and its high price tag, which can run into the millions of dollars, he said.

— Craig Stedman

Information tools for CEOs see renaissance

▸ SAP and other vendors unveil query software

By Craig Stedman

CALLS FROM corporate chieftains for quick-and-dirty access to business performance data is pushing SAP AG and other software makers to pull the executive information system out of deep freeze.

At Sapphire Madrid, SAP became the latest vendor to detail plans for data analysis software that gives senior executives and business managers high-level views of how their companies are doing.

SAP said its Strategic Enterprise Management software, which also includes business planning and external data sourcing features, is due for initial delivery by year's end.

EIS is being dusted off and jazzed up to save busy execs time and energy.

Executive information systems (EIS) that did much the same thing were among the first decision-support tools aimed at nontechnical users.

REVIVING EIS

The EIS concept was all but forgotten in recent years as users bought in to more robust software for business analysts. But now it is being dusted off and jazzed up to save busy executives from having to jump through hoops to get at data.

Wilsons The Leather Experts, Inc., a leather goods retailer in Brooklyn Park, Minn., plans to give an EIS-type tool from Lawson Software, Inc. to about 10 top executives so they can quickly get the pulse of the company.

"I just want to be able to see reports and performance indicators that let me ask questions, and then someone else can take the next step and do the analysis," said Doug Treff, chief financial officer at Wilsons. "That's a better use of our resources and time."

Minneapolis-based Lawson and fellow application rival Oracle Corp. in Redwood Shores, Calif., already are fielding high-level business measurement tools. And in two weeks, San Mateo, Calif., start-up Harmony Software, Inc. plans to release a product that works with multiple packaged applications.

The new tools borrow heavily from the EIS concept but are more graphical and interactive than the old software, "which was basically just a canned report on a green screen," said Steve Bonadio, an analyst at Hurwitz Group, Inc. in Framingham, Mass.

But like the original EIS, the products being released now won't be able to answer all the questions that pop into an executive's head, Bonadio added. "That's why there are financial analysts," he said. □

Veterans vs. newcomers: Salary gap widens

▸ *Low entry pay may lead to manager shortage*

By Laura DiDio and Barb Cole-Gomolski

THE SALARY GAP between veteran information security managers and newcomers has widened dramatically, which could pose a problem for the future of the profession.

Experts said the pay scale for experienced information security managers has risen an average 20% in the past two years, while entry-level salaries have dropped 10% to 15%.

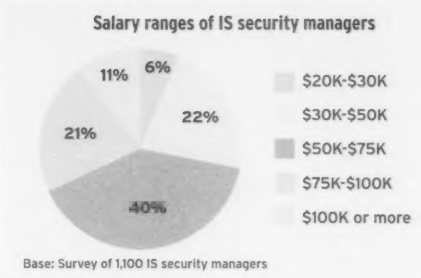
The problem is that the low pay for neophytes — sometimes less than $30,000 per year — could produce a future shortage of security managers, given that entry-level recruits in other information systems fields are getting offers of $40,000 and more [CW, June 22].

"The rise and severity of internal and external corporate hacks means that businesses are willing to pay a premium for experienced security pros. But they won't shell out the dollars on newcomers," said Andrew Briney, editor in chief of *Information Security* magazine in Norwood, Mass.

Most security managers with more than three years of experience are getting salaries of more than $50,000 per year and, increasingly, some are topping the $100,000 mark, according to the latest survey of 1,050 readers of the magazine.

In contrast, 65% of the entry-level security managers make less than $50,000 — and 23% make less than $30,000 per year, the survey found.

"No company wants to put its corporate jewels in the hands of a neophyte," explained Pat Slaymaker, manager of enterprise information security at Nabisco, Inc. in Parsipanny, N.J. "Experienced security managers are at a premium. Once we find one, we try desperately to hold on to them because they are so scarce."



Base: Survey of 1,100 IS security managers

Source: *Information Security* magazine, Norwood, Mass.

Slaymaker said she knows of cases where seasoned security managers have been lured away with "30% salary increases, promises of annual bonuses that represent 15% of their salary, plus sign-on bonuses."

Tom Samson, national director of IS staffing at Pro Staff Personnel Services in Irving, Texas, said demand is fairly low at the entry level because companies are looking for data-security experts with lots of business experience.

But the imbalance between entry-level salaries for security specialists and other IS professionals could result in a drought of security experts down the road, said Cameron Carey, president of Computer Security Placement Service, a Northboro, Mass.-based firm.

"So why would any [entry-level person] go into security?" Carey asked. The answer, he said, is that security experts can command high salaries later in their careers. □

JOBS FORECAST

Poll shows sunny skies for tech workers

By Patrick Thibodeau

THE OUTLOOK for information technology job seekers in the third quarter remains sunny, especially in the South Atlantic states, according to a new survey of 1,400 chief information officers.

In the survey, conducted by RHI Consulting, a division of Robert Half International, Inc. in Menlo Park, Calif., 31% of the CIOs polled said they plan to hire additional IT personnel in the next three months, while just 2% plan cutbacks.

The rest anticipate no changes. The worst area for job seekers is the region that covers Ohio, Indiana, Illinois, Minnesota and Wisconsin. Only 26% of the CIOs in those states plan increases, and 2% expect reductions.

The best area to look for work may be the South Atlantic states, which range from Delaware to Florida, where 37% of the CIOs will increase staff, and only 1% will shrink their job rosters. □

Harassment rulings require clear policies

▸ *High-stress IT jobs 'fertile ground' for suits*

By Barb Cole-Gomolski

RECENT RULINGS by the U.S. Supreme Court are likely to make companies more diligent when it comes to publicizing their policies regarding sexual harassment.

And human resources experts say the information technology field — like other occupations that feature high-pressure jobs with long hours and, in some cases, frequent travel — is fertile ground for sexual harassment litigation.

In a pair of rulings, the high court said employers are to blame when a manager creates a sexually hostile work environment for employees. As a result, companies can be dragged into lawsuits against individual managers being sued for harassment.

In a separate decision, the court said employers could defend themselves by showing that they had sexual harassment policies in place and that the employee making the complaint didn't follow them.

AWARENESS

All of this further encourages employers to develop and disseminate sexual harassment procedures, said Dean Richlin, a partner at Boston law firm Lucash, Gesmer & Updegrove LLP.

"The court has broadened the employer's liability for the [actions of] its managers," Richlin said. At the same time, he said, it has given companies a line of defense: create policies and make them known.

According to the Society for Human Resources Management (SHRM), a trade group in Alexandria, Va., 97% of U.S. companies it has surveyed have sexual harassment policies, but many fail to make those policies known to employees and managers.

Now, "the door for sexual harassment cases has opened a little wider," said Barry Lawrence, a spokesman for the SHRM.

PREPAREDNESS

"This is a tough issue for any manager, and IS people are certainly no better prepared to deal with it than any other group," said Naomi Karten, president of Karten Associates, a consulting firm in Randolph, Mass.

Charleen Allen, director of human resources at Camp Dresser & McKee, Inc., a Cambridge, Mass., engineering firm, is still determining the impact of the rulings. "I think it will be minimal because we have great policies in place and do a lot of training with employees," she said. □

How to avoid a sexual harassment lawsuit

1. Distribute to all employees, at least annually, a sexual harassment policy
2. Be clear about what type of conduct constitutes harassment
3. Be sure that all managers understand what constitutes acceptable behavior
4. Include a procedure for making complaints
5. Carefully follow any policy that you circulate

Source: Lucash, Gesmer & Updegrove LLP, Boston

Compaq cuts jobs, factories

By April Jacobs

No real effect on customers and their businesses.

That's what observers said the bottom line will be for Compaq Computer Corp.'s job cuts and factory closures, which are aimed at trimming costs and duplication after the recent acquisition of Digital Equipment Corp.

"From a customer perspective, I don't think this is going to have any real effects in terms of platform options," said Amir Ahari, an analyst at International Data Corp. in Framingham, Mass. "But it obviously addresses two of the company's objectives, which are improving efficiency and cutting costs."

The Houston-based computer company said last week it would eliminate 5,000 jobs — the first of 17,000 planned cuts from its newly combined workforce of about 84,000 worldwide.

Compaq isn't saying where the other cuts will be made, but it has announced plans to merge its PC, PC server and laptop lines. Most of the merged lines will consist of Compaq technology, with the exception of some Alpha-based workstation and server systems. The company is also keeping an ultralite notebook from Digital.

Hardest hit will be workers at the company's North America manufacturing plant in Houston, which produces PC motherboards.

Compaq now plans to contract that work out to other companies, a spokesman for the company said. However, it will continue to make its own laptop and server motherboards.

The company also plans to close several Digital factories around the world. That would happen wherever operations can be shifted to existing Compaq factories with more advanced methods, company officials said.

Digital's manufacturing headquarters in Marlboro, Mass., will be closed, along with plants in Australia; Singapore; Scotland; Kanata, Ontario; Brazil; and Taiwan.

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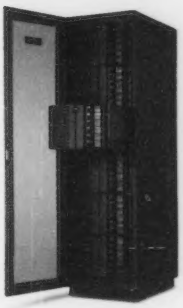

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Echecks to expand electronic payment base

▸ *Treasury zaps first payment; broad rollout seen in 2000*

By Matt Hamblen

IN A HISTORIC FIRST, the federal government last week sent a secure electronic check over the Internet to pay a contractor. But full-scale commercial implementation of the "Echeck" payment technology isn't expected until 2000.

Analysts and members of a consortium behind the pilot project said Echeck won't replace electronic data interchange (EDI) for business-to-business payments.

But they said Echeck will supplement corporate EDI networks by bringing medium-size and smaller businesses, and eventually consumers, into the electronic payments world.

"This is really an extremely affordable and efficient way for people to do funds transfer," said Matthew Kovar, an analyst at The Yankee Group in Boston. "It is well-suited for business-to-business transactions and is really the most significant advance in business transactions since the dollar bill or signed checks."

The first Echeck, for $32,153, went from the U.S. Treasury to GTE Corp. in Stamford, Conn., as partial payment on a $647 million information services contract with the U.S. Air Force Material Command. GTE deposited the Echeck at BankBoston Corp. in Boston, which served as the pilot project coordinator.

HOW IT WORKS

The process works this way: A secure digital signature is sent via E-mail with the original electronic check. When the creditor company receives it, a digital signature contained on a smart card is used as an endorsement, and the check is E-mailed to a bank. The bank can credit the amount overnight — much faster than the usual week it takes for a paper check.

"[Echeck] . . . is really the most significant advance in business transactions since the dollar bill or signed checks."
– Matthew Kovar
The Yankee Group

Echeck will broaden the range of customers and trading partners who can handle electronic payments but aren't EDI-capable, said Susan Landry, director of electronic commerce for global cash management at BankBoston.

GTE hopes eventually to expand the capability of Echeck to let its telephone customers pay by check over the Internet, a GTE spokesman said.

The Echeck program is run by the Financial Services Technology Consortium, a nonprofit banking group in Chicago. The consortium had planned to make the first Echeck payment by the end of last year but fell behind because the group underestimated the time it would take to implement security requirements, said Frank Jaffe, the group's vice president.

Security for the Echeck service is provided by hardware tokens such as smart cards, public key encryption, digital signatures and an authentication server. The Echeck infrastructure also uses two new languages developed by IBM: the Financial Services Markup Language and the Signed Document Markup Language.

The consortium plans to process about 50 more Echeck payments to government contractors over the next 12 months, then begin a commercial rollout. Participants include IBM, Sun Microsystems, Inc., the Federal Reserve Bank of Boston, BankBoston, NationsBank Corp. and BankAmerica Corp. □

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Gigabit Ethernet

DEFINITION: Gigabit Ethernet is an emerging technology that enables data traffic to be sent over fiber-optic cable at speeds up to 1G bit/sec. It is an extension of 25-year-old, tried-and-true Ethernet technology and can be installed in corporate networks with minimal disruption. Gigabit Ethernet is being used to build backbone data networks with 10 times more speed than today's widely used 100 bit/sec. Fast Ethernet.

A standard at last

After two and a half years, Gigabit Ethernet became an IEEE standard late last month (802.3z), a move that's expected to drive deployment of the 1G bit/sec. technology.

Gigabit Ethernet products give an estimated 120 million installed network nodes an Ethernet-based backbone that moves traffic 10 times faster than widely used 100M bit/sec. Fast Ethernet.

"Our core objective in the development of Gigabit Ethernet was to maintain compatibility with the vast installed base of 10M and 100M bit/sec. Ethernet networks and systems," says Howard Frazier, chairman of the 802.3z Task Force. "We met this objective by ensuring that the same [data] frame format and frame sizes are used at all operating speeds."

Ratification of the standard had been delayed when problems were encountered running data at Gigabit speeds over certain lengths of fiber. But those problems have been solved.

— Bob Wallace

Benefits are great, if you generate enough traffic

By Bob Wallace

GIGABIT ETHERNET is a technology you turn to when you've deployed switching to at least 300 to 500 desktops in your building and the traffic that comes back to the data center jams your data pipes.

To solve the problem, make sure the pipe gets bigger as you move from the desktop to the data center. If you start with switched Ethernet and move to switched 100M bit/sec., then Gigabit Ethernet will complete the picture.

AT ISSUE
Gigabit Ethernet technology as a solution to data jams

"Before you consider Gigabit Ethernet, you have to make sure of two things: that you have enough traffic to fill such a big pipe and that different [layers of the network] don't use the same speed, or there could be packet loss," says Tom Nolle, president of CIMI Corp., a Voorhees, N.J.-based consultancy. Because 80% of all desktops still don't have switched connections, Gigabit Ethernet is far from being for everyone, he says.

Users need switched connections because they provide a data flow large enough to fill the pipes. Users don't need huge Gigabit Ethernet pipes if they generate only a trickle of traffic to travel through them.

Nolle also says price and standards shouldn't be big factors in a user's decision. Prices are continually falling, and standards aren't a big deal because you wouldn't mix a vendor's Gigabit Ethernet switch in a backbone network.

MANAGEABILITY

And most analysts agree that manageability of switches is what's important. "You want to be automatically notified of any port, module or chassis performance degradations and outages," says John Morency, vice president at Renaissance Worldwide, Inc., a consulting and research firm in Newton, Mass. "And you want a fairly rich set of filtering and firewall features so you can separate groups to cut down unnecessary traffic and set up strong security."

As for the vendors in this market, start-ups were first on the scene with Gigabit Ethernet switches and adapter cards for servers.

Most big players — Cabletron Systems, Inc. and Bay Networks, Inc. — bought the technology rather than developed it. 3Com Corp. developed its technology, and Cisco Systems, Inc. did both.

PRIORITIES, PRIORITIES

And most vendors have work to do when it comes to offering users the ability to set different priorities for different traffic flows as they come through the box, says John Armstrong, an analyst at Dataquest, a market research firm in San Jose, Calif.

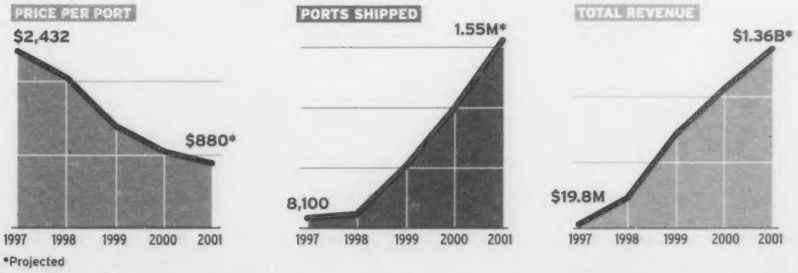
"Many vendors are largely blowing this off by offering [rudimentary] functionality," Armstrong says. "A gigabit is a ton of bandwidth, and users need to be able to manage that bandwidth efficiently." But there's help on the way.

"The push is on for end-to-end service-level management in this calendar year," Morency says. The Big Four are at work on it, he says, and Armstrong adds start-up Extreme Networks, Inc. to that growing group.

Another benefit for users is that Layer 3 switching is built in to most Gigabit Ethernet switches and that can eliminate the need for stand-alone backbone routers. □

Gigabit Ethernet switches

For those dollar-counters, the good news is that the price per port has fallen. And competition is expected to continue to lower prices. However, cheaper switches may not come with as many extras.



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Source: Dataquest, San Jose, Calif.

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OPINION

Service shocker I've just had an astonishing experience in the realm of customer service. I'm still wondering if I dreamed it, because it happened in the computer industry, where the customer is always to blame.

It started when my new PalmPilot III began sucking the life out of AAA batteries so fast I was changing them every other day. I conferred with some other P3s (PalmPilot People), and they all said, "You should call somebody." Rats. I feared that kind of techno-aggravation when I got drafted into the P3 ranks by getting a PalmPilot as a gift. There's a certain amusing irony in spending your time working to keep a time-saving electronic organizer in working order.

But I dutifully called PalmPilot maker 3Com and waded through a dozen automated voice-mail prompts until I found a human being. Time invested:

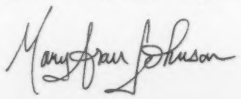
about 10 minutes. I was braced for the standard support-line experience. Condescending techno-babble from some dweeb reading from a script. Suggestions of blame for my own stupidity. ("Ma'am, let me explain this again. You have to move the jumper pin from Block 16 to Block J12 and reset the CMOS defaults to make the IDE controller recognize the hard drive as the slave . . .")

But this 3Com support guy asked only for a few basics like name, rank and serial number. He quickly agreed that the unit was defective and said, "OK, we'll send you a new one. What's your address?" This is way too easy, I'm thinking. This is just like real-world service, where the customer is always right.

The very next day, the new organizer arrives via FedEx, and I'm back in business. As far as 3Com was concerned, I was just another random customer. I didn't wave the *Computerworld* flag at any public relations folks to get special attention.

Now, of course, I'm ruined. Once exposed to such memorable and attentive customer service, how can I settle for the industry-standard abuse? The best I can hope for is that 3Com's refreshing approach will be contagious, as behemoths such as Microsoft, IBM and HP jump into the palm-computing market.

Hey, I should make a note of that in my PalmPilot. Only now I can't find that little stylus pen thingie. . . .



Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Face it, Windows NT will never scale the enterprise

COLUMNIST John Gantz predicts that Windows NT will dominate the enterprise server market [CW, June 8], but if he only glances at page 59 of the same issue of *Computerworld* ("More than four processors a waste"), he would understand why his prediction is doomed.

Despite Microsoft's promises and the hopes of many (including Gantz), Windows NT has never and will never scale because it is fundamentally a desktop operating system. In fact, the gap between NT and Unix is getting larger as each year passes.

The designs of desktop and server operating systems are incompatible.

NT was designed for the desktop because Microsoft makes money by selling large volumes of desktop operating systems. Unfortunately, the designs of desktop and server operating systems are incompatible for the same reasons that the design of a Piper Cub plane is incompatible with the design of a Boeing 747 jet. The former was designed for simple flying, the latter for large-scale transportation.

MVS and Unix will never be good desktop operating systems (for usability reasons), and Windows NT will never be a scalable server that can compete with Unix and MVS. My advice is to stick with highly scalable Unix and mainframe architectures that were specifically designed for large-scale processing.

Richard Finkelstein
Performance Computing, Inc.
Chicago
rfinkelstein@performcomp.com

'Cheap' foreign labor is doing just fine, thank you

IN RESPONSE to Chris Laboe's letter, "Cheap foreign labor lessens demand for top U.S. talent" [CW, June 8], this is a view from the other side — from a "cheap, imported, Indian programmer." Mr. Laboe needs to get with the times. There is "little real demand" for his experience because, apart from year 2000 work, there is relatively little demand for mainframe skills. And employers have every right to bring in workers from overseas if they cannot find qualified workers in the U.S.

Of course, they must pay these workers at least what U.S. workers are paid, and the U.S. government makes sure that they do. Job security is now a thing of the past. If you want a job, go out and get trained in what employers want today. Don't expect an employer to hand you a job and pay you a great salary just because you are an American citizen. Employers are entitled to expect current skills at a reasonable price.

So stop going on and on about how cheap Indian labor is swamping U.S. shores and hurting your chances. In the meantime, this "cheap, imported Indian programmer" will continue making his six-figure salary.

Jayant Chaudhary
Lawrenceville, Ga.

Keep Web design simple

THANKS TO editor Paul Gillin for his insightful commentary on simplicity in Web page design ["Back to basics," CW, June 8].

As a Web page designer, it is often difficult to get my clients to understand the value in designing clean and simple pages that allow the largest percentage of customers to browse and use their sites.

Often, it is the salesmen who make the promises that designers are supposed to keep, offering what amounts to squab dinners at Chicken McNugget prices, then complaining over the costs and low margins garnered.

There are still a lot of issues in design over Java scripting and compatibility with browsers, bandwidth and download times of graphics, functionality of layout and user-friendliness.

Most often, the client has no clue as to what they want, only that they have seen some gimmick and want something comparable — but "need to keep the cost down."

Thank you for pointing out that simple is best because simple always works.

Bob LaForce
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laforce@acpub.duke.edu

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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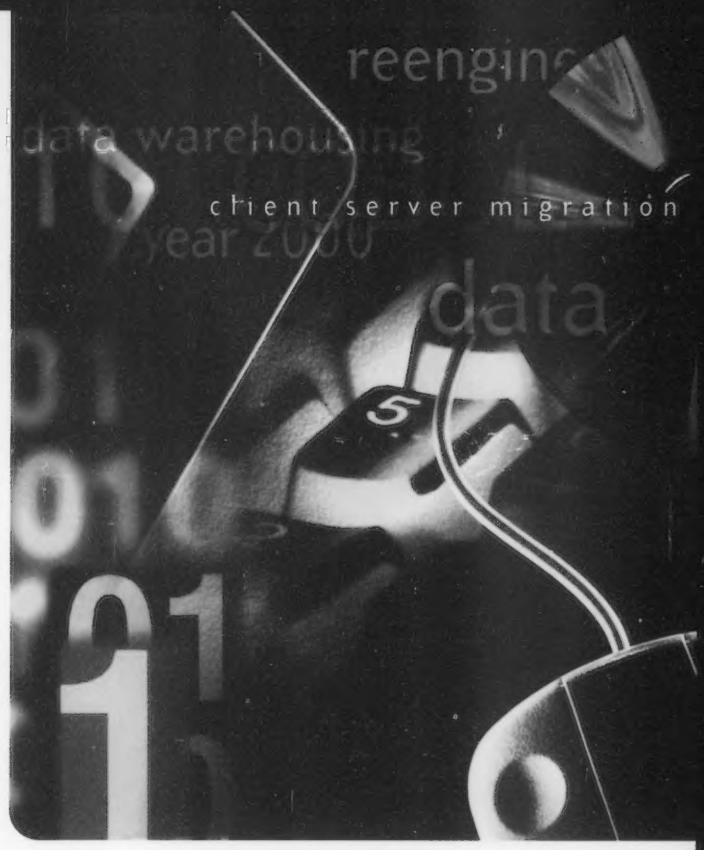

analysis, planning, renovation, and testing:

Year 2000 Solutions at Work

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The Smart Change Factory®– SEEC's Year 2000 Enterprise Solution

The number of COBOL applications operating around the globe is staggering and within the US, these applications represent an asset comparable to our country's oil reserves. Now the challenge many companies and their IS organizations face is the remediation of these systems, which must function accurately when the millennium rolls over. Mission-critical COBOL applications must be either replaced or renovated, but most companies are finding that there is not enough time to replace them unless these projects are already underway. The year 2000 deadline is immovable and, when time for post-renovation system testing is taken into account, the time remaining for renovation is significantly lessened.

Most year 2000 compliance projects consume at least 10-30 man-years of effort and this number is substantially larger for the top 100 IS organizations. With Gartner Group estimates that the cost for year 2000 compliance will be between $300 billion and $600 billion, IS organizations must find a highly-efficient solution for finding and fixing the year 2000 problem. SEEC's software products and solutions can help reduce renovation time dramatically, delivering a comprehensive solution that has already helped companies renovate and put code back into production.

Year 2000 Conversion

Resolving the year 2000 problem typically requires the modification of many diverse software components, including programs, job control languages, query languages, screens and mapping databases and utilities. The detailed assessment, planning, remediation and testing process of a year 2000 conversion project is repetitive, labor-intensive and error-prone, particularly if performed manually on a line-by-line basis. In addition, each hardware operating platform has its own unique set of software components and typically encompasses multiple languages and interfaces between various applications. The difficulty in addressing the year 2000 problem is compounded by the fact that many organizations and third party service providers have only a limited number of individuals with the project management and technical expertise to conduct a year 2000 conversion project. Given the size, scope and technical complexity of the year 2000 problem, many organizations have concluded that they will be unable to address year 2000 conversion requirements in a timely manner utilizing existing internal resources and traditional maintenance and redevelopment methodologies. Many organizations may also find it difficult to outsource year 2000 conversion projects, since many third-party service providers are facing similar resource constraints. These organizations are seeking solutions that can be used internally or by third-party service providers to increase efficiencies and reduce the expense of a year 2000 conversion project.

SEEC's Year 2000 Enterprise Solution

SEEC provides year 2000 conversion solutions through its Smart Change Factory®. The Smart Change Factory combines SEEC's proprietary software products, including SEEC COBOL Analyst 2000™, SEEC Smart Change 2000™ and SEEC COBOL Slicer™ with well-defined methodologies and third-party software products to provide a comprehensive and integrated solution for year 2000 conversion. The Smart Change Factory is designed to address all phases of a year 2000 project, including assessment, planning, remediation and testing. The Smart Change Factory is designed to accurately analyze and determine which applications require remediation and automate certain portions of the analysis and remediation process. A year 2000 conversion process consists of four phases: inventory and impact assessment, planning, source remediation and testing.

1 Inventory and Impact Assessment Phase

This phase involves a comprehensive evaluation of a legacy system assisted by SEEC's software products to identify the applications, programs, files, databases and external interfaces that are or may be affected by the use of two-digit date fields. An assessment is then made of potential program or system failures that may occur, the programs that must be corrected and the cost and timing of implementing required corrections. The information developed in this phase is then used to create a set of technical reports identifying in detail affected programs, data items, logic statements and a preliminary estimate of remediation and testing budgets.

2 Planning Phase

The planning phase involves analysis of the data generated in the impact assessment phase in order to generate a comprehensive plan for implementation of the remediation and testing phases. This phase is critical to developing an efficient remediation and test phase plan to minimize expenses and efficiently utilize existing information technology resources. Under the Smart Change Factory approach, SEEC's software products are utilized to assist in determining the most appropriate year 2000 remediation approach, including program logic changes or date field expansion. In the planning phase, a determination is made whether particular programs should be phased out, replaced, redeveloped or remediated.

3 Renovation Phase

Source renovation involves accurate detection of date fields and their formats. The code modification is based on the solution— date windowing or field expansion. Date windowing involves logic changes in the program to interpret the date values accurately based on the date pattern usage while field expansion involves expanding the fields to include or contain the century component of the date value. SEEC Smart Change 2000 detects and tags all statements that need to be modified. It also suggests the appropriate rule to be applied on those statements, using the rule specification supplied. These rules can be customized to achieve an even higher degree of automation accuracy. The product lets you review the tags before any modifications are applied, and affected statements not covered by a rule have to be fixed manually. All modifications to the source code are documented for future audit and review. The product enables field expansion and windowing to be applied within the same program for different date fields. The modifications for bridging can be generated automatically by framing rules as dictated or required by the bridging product.

4 Testing Phase

Testing is the most time-consuming activity of year 2000 remediation. Establishing compliance means you must test all business functions that employ date logic and all of the source code changes that make them compliant. Any conventional "black box" or functional testing could result in a large number of tests and still may not cover all date logic. SEEC's AccuTest is a unique solution that combines "white box" testing techniques with the black box approach. It optimizes testing by minimizing the number of test cases while maximizing coverage. AccuTest is a comprehensive testing solution combining tools for program analysis and coverage measurement, capture/playback, test management and date simulation. The analysis tool analyzes the data and control flow in programs to suggest test cases. It also enables measurement of test coverage for existing functional testing and suggests test cases to improve coverage. The capture/ playback tool automates testing by recording and replaying test scripts, while the test management tool manages the overall testing process from planning to defect tracking.

SEEC'S YEAR 2000 EXPERIENCE

SEEC introduced COBOL Analyst 2000 for year 2000 analysis and the Smart Change Factory process in September 1995. In April 1997, SEEC introduced Smart Change 2000 and COBOL Slicer for automated source renovation and test preparation. The Smart Change suite of tools were derived from SEEC's core technology and the year 2000 functionality was added based on experience with customer projects in early 1995.

Since then, SEEC's products have been used at over 50 Fortune 1000 sites for year 2000 assessment and the Smart Change 2000 tool has been installed at five sites for source renovation. To date, over half a billion lines of source code have been analyzed using SEEC's technology, and over 20 million lines of code have been renovated and put back into production. SEEC pioneered the on-site factory concept and has partnered with companies like Wheeling Pittsburgh Steel Company and MACK Trucks to set up Smart Change Factories in-house. These companies are well on their way to total year 2000 compliance having completed the assessment and planning phases and some portion of the renovation and testing.

One of the key benefits that SEEC's tools and process have provided these and companies like them is a reduction in effort and cost by accurately identifying the affected date items and statements, and then further analyzing the affected statements to assist in the choice of the tactical solution — Procedural versus Windowing. The Smart Change approach has resulted in substantial savings to customers by reducing the number of programs and lines of code that must be renovated. Most SEEC customers have chosen the date windowing solution and, in these cases, the number of lines of code requiring renovation is less than 0.5%.

SEEC has pioneered the date windowing solution for year 2000 compliance. SEEC's process and tools identify the date operations that must be reviewed and, using a rule-based approach, suggest the appropriate fix to be introduced in the program logic. This approach greatly reduces the number of lines that need to be reviewed manually. In addition to improving the productivity in identification and renovation of code, it ensures a consistent and repeatable method of fixing the year 2000 problem.

The results from year 2000 analysis obtained using SEEC's tools at two organizations:

Company	*Total Programs*	*Size of Application Portfolio (total LOC)*	*Total Affected LOC*	*% Affected Impact*	*Total Affected LOC using Windowing*
Wheeling-Pittsburgh Steel	8,485	12,809,341	951,650	7.4%	70,498
MACK Trucks	7,555	6,435,210	374,968	5%	28,744

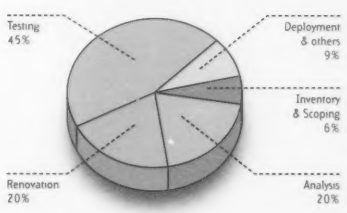
Automated Renovation Metrics

Organization	*Programs*	*LOC*	*% Changes (made automatically)*	*Effort in Hours (including manual changes)*	*% Affected LOC Using Windowing*
University of Pittsburgh	177	264,000	97%	200	.5%
Anthem Insurance	265	700,000	95%	200	.4%

TESTING

Most of the IS organizations within the U.S. have completed their year 2000 assessment and have begun the renovation phase; with renovation underway, year 2000 project offices and managers are now looking ahead to testing. The Gartner Group estimates that 45% of the year 2000 efforts will be spent on testing (*see chart at right*).

Year 2000 Project Effort



Source: Gartner Group, Inc.

The testing effort will exceed the assessment and renovation efforts combined. Therefore, any measures that organizations take to optimize the testing effort and improve the quality of testing will allow them to convert more systems in the time available.

Unlike most other software projects, year 2000 projects have an immovable deadline that cannot be missed. This deadline need not always be the year 2000; it may be sooner if the systems operate on future dates such as expiry or maturity dates. Hence, the actual deadline is the date when systems are estimated to exhibit date-related abnormalities. This is often referred to as the **Time Horizon to Failure** or **THF**. Working back from the THF and taking into account the time needed for deployment and other emergencies, the systems must be renovated and tested well before their THF. If there is no overlap between renovation and testing, the time available may not be enough.

Fortunately, two very time-consuming phases of testing—test planning and test preparation—do not need to wait for renovation to be completed. These can proceed simultaneously with assessment and renovation so that the actual testing can begin as soon as renovation

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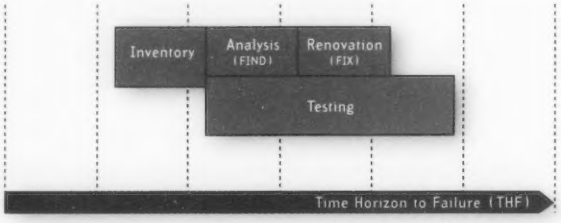
Year 2000 Project Timeline



is complete *(see chart above)*. This allows more time for test planning and preparation, and if this time is used judiciously to improve the testing methodology and automate the tests, the testing effort can be drastically reduced. Also, test plans and scripts are assets well beyond the year 2000 and can be very useful during auditing.

The Goal

The objective of testing is to ensure that the systems are ready and compliant before their THF. Defects found after release are the most expensive to fix and—in the case of the year 2000 bug—present potential litigation problems. Software engineering practitioners know that up to 60% of all system modifications inadvertently introduce new defects (Source: Software Engineering Institute). Hence, the primary goals for testing are to:

- Complete testing of the systems before their THF
- Maximize the percentage of defects found and remedied
- Minimize the unintentional defects introduced as a result of renovation

Test Planning

Test planning is the most important year 2000 activity and the decisions regarding the testing methodology, test environment, tools, staffing and budgeting are made during this phase. The following steps detail the test planning process:

1. Prepare the test methodology

Estimate the testing effort and prepare a test methodology. You will need to determine the following: the test strategy, the tests and test data, what and how much will be automated, how defects will be reported, post-fix testing, and acceptance criteria.

2. Prioritize applications

An application's business value and its THF determine its criticality. They also determine the amount of testing and the order in which the applications will be tested.

3. Select the test environment

Determine whether a separate CPU, a logical partition or a test CICS region is the appropriate test environment. Perform capacity assessment to estimate the CPU and DASD requirements for testing. If the available capacity does not meet the requirements, plan to acquire additional hardware. Ensure that the test environment itself is year 2000 compliant and able to simulate future dates.

4. Choose testing tools

Evaluate and select the tools for testing. Verify that the tools are year 2000 compliant and are compatible with the test environment. Note that some tools will work only with certain versions of OS, CICS and other sub-systems.

5. Staff adequately

Staffing is a very important requirement and, depending on the time available, additional testers may be needed. If adding a new suite of tools, plan time for training staff. Plan for system administration and maintenance time to install new hardware and tools.

Test Preparation

Test preparation involves setting up the test environment and preparing test cases and test data. Test preparation requires extra thought because it is time consuming and may surprise you with unexpected results.

1. Set up the test environment

Ensure that the production environment is well-insulated from the test environment and that the data sets are not shared between test and production systems. Test the environment to ensure it is year 2000 compliant and is able to handle special dates such as February 29, 2000.
If you plan to reset the system clock to simulate future dates, be aware of pitfalls such as expiration of data sets, licenses, user IDs and passwords. Resetting the system clock can affect system logs in databases that may be difficult to reset.

2. Prepare detailed test plans

Prepare detailed test plans to test each module and transaction. The test plan details the steps and the expected results.

3. Prepare test scripts and JCL jobs to automate testing

Plan to automate as much as possible. You can automate online testing using capture and playback tools.

For batch systems, you can use JCL jobs to run the application through different sets of test data. Automated tests offer the following advantages:

- They can be run repeatedly with the same level of accuracy, while manual testing may miss steps as testing personnel grow bored with the process.
- Test scripts can be customized to make the same script test different scenarios.
- Tests can be scheduled during off-hours.
- They can be used well beyond the year 2000.

4. Prepare test data

Based on the testing methodology and the volume of testing needed, test data must be prepared. One easy method of generating test data, which requires a large DASD, is a snapshot of the production data. Since tests will change the data, to test the base line repeatedly, save the initial test data andre store it before each test cycle.

TYPES OF YEAR 2000 TESTS

Year 2000 tests are categorized as **regression** or **baseline tests, compliance tests** and **acceptance tests**. Regression tests ensure that the current functionality has not changed, while compliance tests ensure that the application will behave as expected in the 21st century. Acceptance tests ensure that any changes to the user interface did not affect its usability and year 2000 renovation did not significantly deteriorate performance.

Regression or Baseline Tests

The first and the most important test is the regression or baseline test. Since year 2000 renovation does not change the functionality, the converted system should behave exactly as the old one. The following steps describe how to conduct the regression tests.

- Prepare the test data.
- Create the baseline tests using the existing system. Save the results of the baseline tests (the modified data files, screen shots and generated reports). Collect statistics to measure the time taken for major operations and estimate DASD requirements. Note that none of the steps mentioned require the renovated source and can be done before renovation is complete.
- Make appropriate changes to the test data and scripts for the renovated system. If date fields have been expanded, then the test data and scripts will need to be altered accordingly. Tools are available to automate this process.
- When the renovation is complete, repeat the baseline tests on the renovated system. Compare the new results with the saved results. The comparison can be automated by using smart comparison tools that can examine expanded dates with unexpanded dates.

Unit or "Peephole" Tests

Whether or not unit tests are appropriate for year 2000 renovation is highly debatable. The primary purpose of a unit test is to make sure a program behaves as specified. Since not every program can run stand-alone, unit tests require drives and stub programs to be able to run the program under stand-alone test conditions. Unit tests are ideal during development because related modules may not exist and it is easier to isolate defects when programs are run stand-alone. The situation is completely different for year 2000. The programs are production systems and the changes are very specific. Hence, we do not recommend unit tests unless:

- The software engineering practice of the organization requires unit testing for all changes
- Unit test cases exist and are up-to-date

We recommend an alternate form of unit testing, better suited for the year 2000, that we refer to as the "peephole" test. This method tests the changes in isolation, ensuring that the modifications are compliant and did not introduce unintentional defects. Path analysis tools such as SEEC COBOL Slicer can show how control-flow can be directed to the changes to test them.

You can also achieve the same benefits of unit testing by measuring "coverage." The renovated source code can be used to log the statements that were executed during a test run. Analysis of this log shows the changes that were not covered by the test run. Path analysis tools can be used to generate test conditions to supplement the test suite with new tests to cover them.

Compliance Tests or Time-Dimensional Tests

Compliance or time dimensional tests ensure that the systems will work in the next millennium. The testing is accomplished by simulating future dates and aging existing data to generate appropriate future data. The following sections detail these steps:

Simulate Future Dates

A future date can be simulated in three ways:

1. Set the CPU clock to a future date and time. Even though this is the best way to perform time dimen-datasets or licenses to expire and, therefore, should be reserved for only the final stages of testing.
2. Create a logical partition (LPAR) and supply an alternate time for the LPAR. Creating an LPAR can be complex and time consuming. Note that it may not be worth the effort because, again, it may cause datasets or licenses to expire.
3. Use a clock simulation tool. These tools intercept system calls to dates and supply the application with alternate dates. These tools allow precise control at the module or application level.

Whichever method you choose, test to ensure the following dates operate correctly: 9/9/1999, 12/31/1999, 1/1/2000, 2/29/2000, 1/1/2001. Test for dates used as keys or indexes, date usage in sorts, search criteria and purge logic.

Data Aging

To test the systems in future dates, you need future data, but it may be difficult to create fresh data containing future dates. One method is to age existing data by a specified number of days and tools are available to help with this. While aging the data, preserve all date relationships. If the application that uses this data is sensitive to days of the week, make sure you preserve those specific date relationships.

SEEC's AccuTest Solution

SEEC AccuTest is a comprehensive testing solution that combines "white box" testing techniques with the conventional "black box," or functional, testing. Its components include: a test management tool, a capture and playback tool, a path analysis and test coverage measurement tool and a date simulation tool.

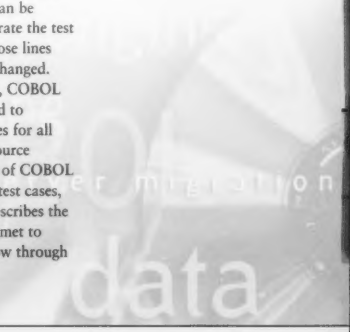
The test management tool is a groupware that allows developers, testers and managers to cooperate throughout test planning, automated test execution and defect tracking. The capture/playback tool lets the user record the test session once and repeatedly play it back. Its rich functionality permits extensive customization to make a single script test different scenarios. This tool is tightly integrated with the test management tool to store the test scripts and execution results in a single repository.

AccuTest's core component is SEEC COBOL Slicer. COBOL Slicer helps in test planning and test preparation by generating the test cases for the renovated programs. It optimizes and improves the quality of testing by minimizing the number of tests and, at the same time, maximizing coverage. SEEC COBOL Slicer lets you measure test coverage to evaluate the adequacy of testing and test data.

The test cases generated by SEEC COBOL Slicer are useful during all phases of year 2000 conversion. During assessment, they can be used to estimate the testing effort. During planning, depending on whether the renovation strategy is windowing or field expansion, an appropriate criterion can be specified to generate the test cases only for those lines that need to be changed. After renovation, COBOL Slicer can be used to generate test cases for all changes to the source code.The output of COBOL Slicer is a list of test cases, each of which describes the conditions to be met to direct control flow through a desired path.

The test coverage measurement feature generates an "instrumented" version of the renovated source code. The instrumented source is identical to original source except that it has an added feature to profile tested lines. When the instrumented sources are compiled and tested, they generate coverage information. This information is used to generate a report of coverage statistics and a list of untested statements. The untested statements are used to generate additional test cases to improve coverage.

The date simulation tool intercepts the specified application's request for system date and time and substitutes the actual date/time with the date/time specified for the application. The simulated date can be specified as an absolute date or a relative date. The simulation can be specified for a job, started task, a TSO user ID, CICS transaction or IMS/DC application. ◆



solutions at work

USA Group

"On-site Factory Saves Time and Money for USA Group"

Like many organizations, the USA Group—a leading national provider of financial and management services to the education community—believed that its year 2000 renovation program would be too time-consuming to handle in-house. After several service providers proposed using SEEC's Smart Change Factory solution to do the Y2K project in an off-site factory, the team at USA Group rethought their strategy. They realized that using the SEEC solution in an in-house factory would cost less while giving USA Group greater control. That judgment has been borne out, as the year 2000 project is ahead of schedule and "more than one-third under budget," according to Rick Olson, director of systems development.

"We liked that SEEC offered a mature tool-set," says Kris Brothers, USA Group's year 2000 legacy system project leader. "These tools had purposes other than year 2000 renovation, but they had been optimized for Y2K projects." Adds Olson: "SEEC has an integrated tool-set, which saved us the trouble of mixing and matching tools from different vendors." Also, SEEC's solution is one of the few that supports USA Group's IDMS and ADS/O environment.

Ahead of schedule with fewer resources

USA Group's MVS mainframe environment includes programs written in three COBOL dialects as well as Quikjob, and includes ADS/O and the database IDMS. The application inventory included 40 sub-systems with 8,000 modules comprising over four million lines of code (LOC).

In the Fall of 1997, USA Group set up an on-site Smart Change Factory staffed by six consultants from Indecon, a midwest consulting company. Indecon had worked with USA Group during their tool selection process and was familiar with SEEC's mainframe redevelopment solutions from other projects, explains Dave Ewing, project leader for USA Group's Y2K factory.

A three-person year 2000 project team coordinated activities among the factory team and internal subsystem teams, which were responsible for testing and re-integration of the renovated systems. The project management team also was responsible for source code management, which proved to be more difficult than they had anticipated. Another challenge was that USA Group's programmers had been 'pushing the envelope' of IDMS capabilities. SEEC turned the challenge into an opportunity by providing product enhancements and other technical assistance to handle USA Group's unique programming issues, and added support for DC COBOL and Quikjob in its Smart Change Factory toolset.

After the pilot phase, the assessment and renovation factory moved ahead with productivity double what USA Group had expected. This was the result both of thorough source management procedures, as well as the technical experience of the factory team. High productivity allowed them to reduce the factory team to four, instead of expanding it from six to nine, as originally planned. By the end of May, they will have 75% of their systems renovated and 57% fully tested and returned to production.

Despite using fewer resources, USA Group's project is ahead of their scheduled completion date of mid-December 1998. "We are very satisfied with the quality and productivity of the SEEC tools," Brothers says. The Smart Change Factory "has performed above our expectations," Olson adds.

USA Group's year 2000 effort also will have some carry-over benefits. SEEC's assessment tools helped identify production errors in existing code that are being corrected by the subsystem teams, and USA Group now has compiled a comprehensive database of system elements identified by language. This will be useful in on-going maintenance, and may facilitate future language conversion efforts, Brothers says.

solutions at work

Anthem, Inc.

"High Productivity and Accuracy Changes Perceptions of Automatic Renovation"

The year 2000 problem is challenging IT managers to find new and better ways to handle large-scale reengineering projects. At Anthem, Inc., a large health care management and insurance company based in Indianapolis, the year 2000 project required a "change in philosophy," stated **Janet Myers,** Director of Anthem's Year 2000 Program. A cornerstone of this change is the use of tools that provide automated code-renovation capabilities.

In the past, Anthem relied exclusively on traditional code modification processes as its programmers had found that automated code renovation tools lacked flexibility and functionality. As a result, there was a real skepticism of automated code-renovation tools within the company's IT division. On the other hand, a manual year 2000 conversion-process would add human error, time and expense to the project. With the immovable January 1, 2000 deadline, time was of the essence.

"The automated code renovation solution we are using provides the high productivity Anthem wanted," Myers stated. "We are able to do weeks worth of programming work in days."

Besides high throughput, Anthem's renovation team had a very short learning curve. During an initial pilot, which was also used as a training period, program-mers completely renovated 260 programs at a rate of 10 programs per workstation per day. Ninety-five percent of the required program changes were made automatically and, as Anthem discovered during later testing, those changes were also highly accurate.

Between August 1997 and March 1998, a five-person team assessed and renovated eighty percent of the 30 million lines of COBOL programs associated with Anthem's business in the states of Indiana, Kentucky, and Ohio. Out of the 30 million lines of COBOL, about 10 percent of the lines of code were date-affected. The renovation team pinpointed and then tagged the code that directly needed to be changed, saving programming time. Now, 20 percent of those programs have been returned to production, and productivity has remained high throughout the renovation phase.

"One advantage of the renovation tool is that we could tailor it to our situation," stated Myers. Anthem customized the tool to meet its specific programming requirements and programmers added 10 new rules. And because the tool is a PC/Windows-based solution, the renovation process did not create new processing demands on the mainframe. "We had tried a mainframe-based [year 2000] tool, but our programmers preferred a LAN-based product. The mainframe tool also utilized a large amount of the CPU, thus increasing our costs. In addition, it also was more convenient to maintain continuity between our PC-based assessment tools and the renovation tools," Myers said.

Anthem, which expects to complete the renovation portion of its year 2000 project before the end of this year, is using both SEEC Smart Change 2000 and SEEC COBOL Analyst 2000 in its renovation efforts.

Patni Computer Systems

"PCS Demonstrating Off-shore Productivity"

With the year 2000 deadline looming rock-solid in the near distance, many organizations are turning to experienced year 2000 service providers to accelerate compliance efforts. One such provider is Patni Computer Systems (PCS), a leading global software services company with over 1,500 software professionals, with customers including General Electric, Hitachi and Baan. PCS has been using SEEC's Smart Change Factory solution together with its own SeCure2K methodology to offer reliable cost-effective year 2000 services.

PCS recently completed its first full-scale renovation project using the SEEC solution at its off-shore year 2000 conversion facilities in Pune, India. The ten-member conversion team renovated and tested 2.4 million lines of COBOL/IDMS code for a billion-dollar U.S. defense contractor. The success of this project demonstrated the reliability and productivity of off-site conversion when combining the automated output from SEEC tools with PCS's established quality-assurance procedures and world-class project-management practices.

Project Scope

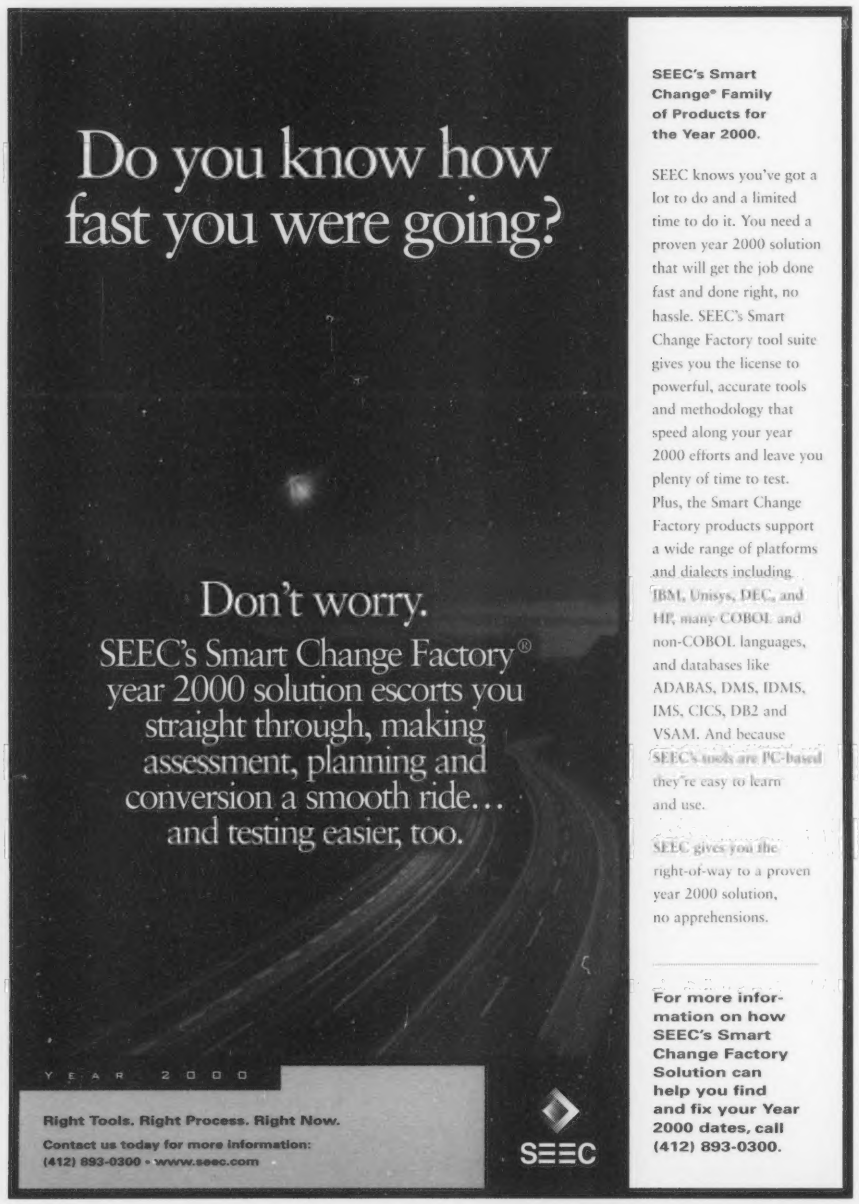
Like many organizations, PCS's client chose to migrate its legacy systems to newer, year 2000 compliant ones, instead of renovating all older programs. Migration, however, will not be completed before 2000; this meant some older systems had to be renovated in spite of migration plans. Rather than divert in-house resources to these year 2000 efforts, the customer used PCS expertise to provide a quicker, more cost-effective renovation.

Before any off-site renovation took place, PCS sent two team members to the customer's site. For a month, PCS staff worked with the customer to develop project estimates, schedules, determine the conversion methodology, testing methods and form acceptance criteria. PCS staff also worked with client personnel to ensure code was downloaded correctly. This careful process ensured continuity and consistency throughout the project. With plans in place, the code-consisting of 3,565 programs totaling 2.4 million lines—was transferred to PCS's year 2000 factory. Throughout the project, an on-site coordinator (OSC) remained at the customer site to facilitate communication between the client and the remediation team in India.

Within the factory, PCS used SEEC COBOL Analyst 2000 to assess the date-impact in the programs and build an application repository. Analysis showed that less than five percent of the program code was date-affected. Then using SEEC Smart Change 2000's AccuFind feature, the 10 member remediation team identified and tagged date-items that needed to be corrected. The use of SEEC's windowing methodology reduced this to about 4/10th of 1% of the total lines of code. The programmers applied Smart Change 2000's AccuFix feature to automatically correct the affected code. Manual changes were also required to some applications, including the correction of some date-related items in already year 2000 compliant code. These were completed in one month. One such correction was when the team spent a total of 54 person-days to manually correct a single, 600,000 line application.

Due to Smart Change 2000's automatic conversion, overall productivity to find and fix the code (including manual changes) was an efficient 300,000 lines of code per man-week for impact assessment and 75,000 lines of code per man-week for renovation. Besides high productivity, SEEC's Smart Change Factory solution offered consistent programming logic and extensive documentation to assist future program maintenance. This is especially important in off-site renovation work, as future maintenance becomes the responsibility of in-house staff.

Following renovation, PCS performed unit and integration testing using multiple 64 kbps satellite links to the customer's mainframe. Group leaders developed integration test plans for only the impacted processing threads; then the factory team ran integration tests using data provided by the customer. The same programmers who converted specific programs developed unit test plans and generated test cases for those programs using SEEC COBOL Slicer. COBOL Slicer simplified test-case generation and reduced unit testing costs by pinpointing the data paths that needed to be tested. Because PCS only needed to convert some of the system modules, the customer has taken final responsibility for system testing.



SEEC's Smart Change® Family of Products for the Year 2000.

SEEC knows you've got a lot to do and a limited time to do it. You need a proven year 2000 solution that will get the job done fast and done right, no hassle. SEEC's Smart Change Factory tool suite gives you the license to powerful, accurate tools and methodology that speed along your year 2000 efforts and leave you plenty of time to test. Plus, the Smart Change Factory products support a wide range of platforms and dialects including IBM, Unisys, DEC, and HP, many COBOL and non-COBOL languages, and databases like ADABAS, DMS, IDMS, IMS, CICS, DB2 and VSAM. And because SEEC's tools are PC-based they're easy to learn and use.

SEEC gives you the right-of-way to a proven year 2000 solution, no apprehensions.

For more information on how SEEC's Smart Change Factory Solution can help you find and fix your Year 2000 dates, call (412) 893-0300.

Tooting our own horns

Michael Cohn

I'm sick of all the horror stories. I'm tired of the IS bashing. Tired of hearing about huge project overruns. Blown budgets. Computer glitches destroying companies. Baloney! We're doing a good job. The grownups need to know about it. Because right now, they think we're losers.

We're wasteful. They're reluctant to fork over the $40 million we'll need on our next $20 million project. And you don't even want to mention to them the half a billion or so you'll need for this year 2000 thing — that'll really tick them off.

Let's not run and hide. Let's not feel sorry for ourselves. Instead, it's time to toot our own horn! To tell folks what a great job we're doing! We're adding value. Bolstering the bottom line. High tech is the best thing to happen to this nation, and it's high time somebody said it.

IS provides information to thousands of people. Unfortunately, many are our competitors.

So in the next board meeting, gathering of stockholders — or even the next time you run into one of the big cheeses in the hallway — stick out your chest and say something positive. Say something like:

We deliver what we promise! In this era of project fiascoes and missed deadlines, IS can confidently state that we plan to finish one major project this year and are positive we'll finish a major project next year! (Unfortunately, it's the same project.)

We provide access to information! Business means speed. Business means information. Thanks to IS, you have data. Decision-making. Critical, strategic facts and figures. IS can proudly say that we provide information access to hundreds, perhaps thousands of people across the globe.

Unfortunately, many of them are our competitors. But we're working on it.

We offer security! In a world of hackers and break-ins, our company has been safe. Even with worldwide distributed systems and global networks, there have been no significant crashes, data losses or damaging viruses, as long as you don't count the pesky one tht frqntly dstrys hndfls f vwls.

We save the company money! While everyone else shelled out big bucks for the latest techno-fads, we held the line. After all, who really needs Windows 98? DOS 3.0 works fine for us. And hey, our dot matrix printers are still humming, and our old clunker software from 1974 still runs like a champ. Funny thing, though, the vendor's been telling us to call his fancy automated hot line because of some year 2000 thing . . . but we're having trouble finding the # sign on our rotary phone.

We've got experience! In these days of corporatewide turnover, the IS management team is still one of the most capable and experienced in our industry. This year, we can boast of more than 30 years' experience in the CIO position alone. (Of course, that experience came from the combined backgrounds of three guys, none of whom lasted more than four months here.)

And finally, IS means competitive advantage! Look at all we've done to enable the workplace. We've got sales force automation. Intranets. Quotes, bids and proposals at the push of a button. Our salespeople have more data than ever before! Now, if only half of them could figure out how to turn on a laptop, then maybe we'd really have something. □

Cohn is a consultant in Atlanta and provides incredible value because he's experienced, responsive, knowledgeable . . . but mostly 'cause he works cheap.

One summer blockbuster that will bomb

John Gantz

I'm trying to liken the proposed $48 billion AT&T buyout (and bailout) of TCI to a summer movie. *Armageddon*? (I see disaster looming.) *X-Files*? (Both mystery and conspiracy here.) *Deep Impact*? (A long wait before the asteroid actually hits.) *Godzilla*? (A lot of noise around a crummy premise.)

This is surely a blockbuster merger. The biggest phone company and the biggest cable TV company. Thirty-seven billion dollars' worth of stock, $11 billion in assumed debt.

Many billions more in legal and investment banker fees for the deal to go through — heck, almost $2 billion if it doesn't. Zillions of regulatory meetings. A week's worth of headlines, photo ops and generic executive quotes.

JUST A THOUGHT

So why do I think it's a bad idea? Maybe it's because I've spent more than 20 years as an analyst covering AT&T and interacting with people deep inside the company. Maybe it's because I foresee a cultural mismatch between the two companies even greater than that between Bill Clinton and Jiang Zemin. Maybe it's because I believe Tom Malone, founder and CEO of TCI, is a wheeler-dealer capable of negotiating circles around AT&T management.

Maybe it's because I've seen AT&T take so many multibillion write-downs for boneheaded decisions. Maybe it's because the terms of the deal were set down after only 10 days of negotiation — about the time that most of us put into refinancing our homes.

In fact, the only reason my pessimistic view of this merger may not be warranted is that Wall Street seems to agree, having lowered both stocks' share prices since the announcement. If the herd thinks one way, maybe I should think another.

Nah. This time, the herd is right.

Here's my doomsday scenario. Because these two companies are so complex, knitting them together will take years. TCI is especially complex — even some Wall Street analysts who closely follow the company can't unearth all its pieces. It will take AT&T years just to figure out what it bought. And I expect Malone to take his billion dollars, walk away and go somewhere else.

NO GLUE

Without Malone, entropy will eat at the TCI portion of AT&T's new Consumer Division. When that happens, AT&T, as it did with NCR, will install its own people in the TCI parts of the company. They'll discover stunning cost overruns in the huge upgrade of the TCI plant (under way). After endless internal meetings and terabytes of memos, AT&T will downsize the division and take a multibillion-dollar write-down.

Here's one critic's thumbs-down for the AT&T/TCI deal.

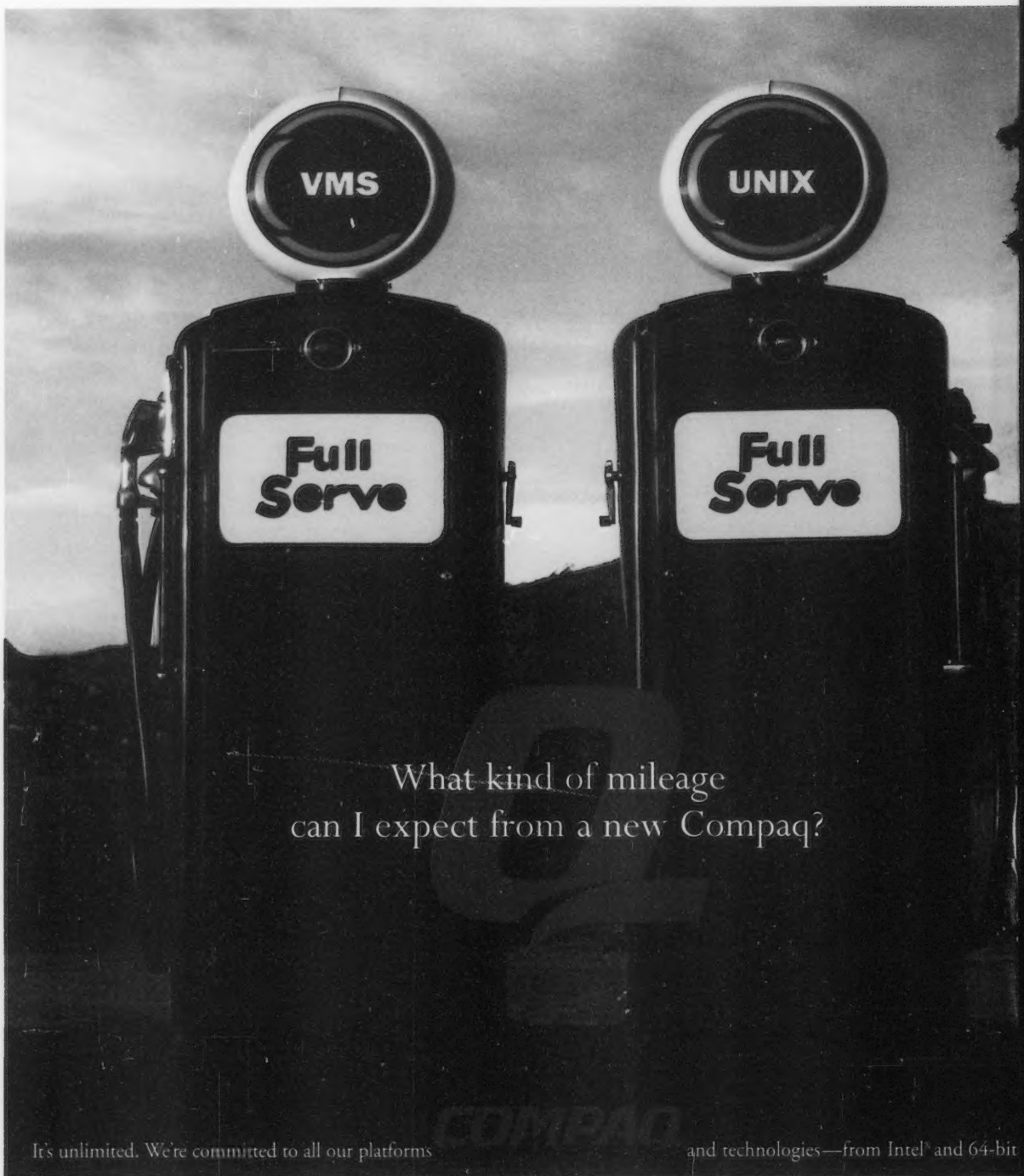
Does it matter to you?

As a consumer, sure, as much as it affects any of us watching with bemusement as the telco goliaths slug it out in our calling areas. As an investor (and most of us are), it adds volatility to a blue-chip investment.

But as a business professional, it probably just means that one of your major suppliers (I'm assuming AT&T is providing some level of voice, data or Internet service to you) will become wildly distracted trying to deal with the merger. That distraction will probably degrade the level of service and new-product development from the enterprise-oriented side of the AT&T house.

But mainly, in the spirit of other summer blockbusters, this will provide entertainment. The movie doesn't have to be good. Just noisy, filled with special effects, and air-conditioned. □

Gantz is a senior vice president at IDC in Framingham, Mass. His Internet address is jgantz@idcresearch.com.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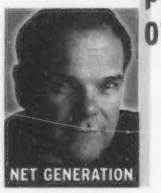
Kids, technology and the schools

Don Tapscott

It has become fashionable to say that computers in education are a bust. In just one example, an *Atlantic Monthly* cover story deems spending money on computers in the classroom "malpractice."

And indeed, many implementations in classrooms with untrained teachers have tended to do little — or worse, reinforce the "drill-and-kill" model of learning that dominates the schools.

But in researching dozens of schools for *Growing Up Digital*, we found that the new media can positively change the role of teacher and student, shifting education from broadcast to interactive learning. When done effectively (as it usually is not), the results are dramatic.



The topic is saltwater fish. The teacher divides the Grade 6 class into teams; each will prepare a presentation on a fish of their choice. The reports will cover the topics of history, breathing, propulsion, reproduction, diet, predators and "cool facts." The students have access to the Web and are allowed to use any resources they want. Questions should be addressed to others on their team or to others in the class — not to the teacher.

The new media can positively change the role of teacher and student.

Two weeks later, Melissa's group is up first. They've created a shark project home page with hot links for each subtopic. The presentation is projected onto a screen at the front of the class as the girls talk. They have video clips of different types of sharks and another clip that shows the late Jacques Cousteau discussing the shark as an endangered species.

The presenters then go live to Aquarius, an underwater Web site located off the Florida Keys. The class can ask questions of the Aquarius staff, but most inquiries are directed at the project team.

One of the big discussions is about the dangers posed by sharks vs. the dangers to sharks posed by humans. The class decides to hold an online forum on that subject and invites kids from sister classes in other countries to participate.

The classes browse through their project anytime, from any location — it will be "up" for the rest of the school year. In fact, the team decides to maintain the site, adding new links and fresh information throughout the year. It becomes a living project. Other learners from other countries find the shark home page helpful in their projects and build links to it.

The teacher acts as a resource and consultant to the teams. He also serves as a technical consultant on the new media. He learns much from Melissa's group, who actually know more about sharks than he does (his background is arts and literature, not science). The teacher doesn't compete with Jacques Cousteau, but rather is supported by him.

This scenario isn't science fiction. It's occurring in advanced schools in several countries. The teacher isn't a broadcaster of information to students viewed as empty vassals. He is a facilitator to social learning whereby learners construct their own knowledge. They will remember what they learned about sharks, as the topic now interests them.

More important, they have acquired collaborative, research, analytical, presentation and resourcing skills. With the assistance of a "teacher," they are constructing knowledge as well as their world.

Net Generation children prefer the interactive model of learning and are beginning to place significant pressure on the schools for change. □

Tapscott is chairman of the Alliance for Converging Technologies and an authority on the impact of the digital media on business and the economy. He is author of six books, including the bestsellers Paradigm Shift *and* The Digital Economy. *His most recent book is* Growing Up Digital: The Rise of the Net Generation *(McGraw Hill, 1998).*

Handicapping the Telecom Derby

David Moschella

Let the race begin. AT&T's bold bid to acquire TCI and the go-ahead for the WorldCom/MCI deal suggest that restructuring of the U.S. communications infrastructure has begun in earnest.

While pundits still bemoan what they see as a lack of competition, a new telecom industry is busy being born.

Let's start with the basics. Today's telecom giants are essentially trying to undo two artifacts of the past, one bureaucratic and one technological. The former is the wholly unnatural, government-imposed divide between long-distance and local-telecom companies; the latter is the historical association between particular technologies and particular types of telecom traffic — copper for voice, coaxial cable for television, fiber optics for backbone traffic and so on.

Today, modern technology and changing customer requirements have rendered those legacies obsolete. The information economy of the 21st century would be much better served by a whole new set of competitive end-to-end telecom suppliers. To enable that massive transformation, two equally vital processes are required: substantial restructuring of existing telecom players and assets and sustained levels of increased infrastructure investment.

It's from that perspective that we can sort out the value and wisdom of today's telecom mergers. Three basic types of deals tend to make the most sense:

- Long-distance, cable and wireless ventures. The combination of AT&T/TCI and the wireless assets AT&T picked up through its acquisitions of McCaw and Teleport present a number of attractive alternatives. Put simply: Cable and wireless technologies remain the only viable paths toward serious local-loop competition; both will require huge capital expenditures.
- RBOCs with one another and with satellite technology. Today's regional Bell operating company mergers lay the groundwork for those RBOCs to become important long-distance players. Also, watch for the RBOCs to get serious about satellite television. It's a cheap alternative to cable TV and can drain cash out of that capital-hungry industry.
- Internet service providers with either RBOCs or long-distance players. With the possible exception of AOL, virtually all 'net service providers are ripe for acquisition. AOL is different not just because of its size but because it's more of a media company than a mere carrier of bits. WorldCom/MCI is of course the signature example of this trend. Let's see what happens with Qwest.

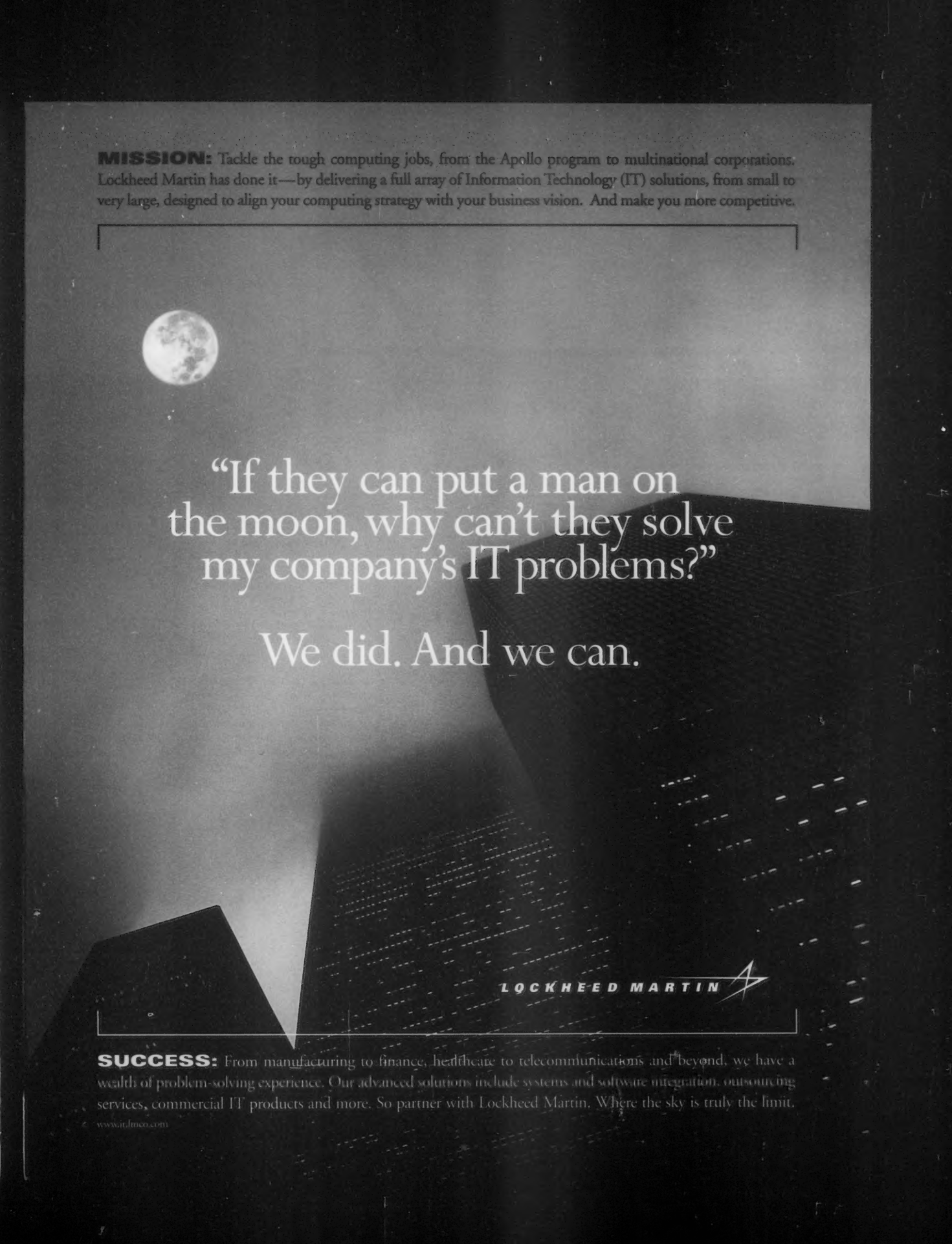
But there are two types of deals that won't be popular. The RBOCs and cable companies will continue to find it difficult to do big things together, especially as the number of RBOCs shrinks. In contrast, it's the Federal Communications Commission that, rightfully, has pretty much vetoed deals between the RBOCs and the major long-distance providers.

The next century will be better served by a new set of competitive suppliers.

When will this idealized, competitive end-to-end, high bandwidth, multimedia infrastructure become a reality? From an IT industry perspective, that's the overriding question that will determine when a new wave of potential products and services becomes viable. But for consumers, there's much less rush. How many of us are breathlessly waiting for the arrival of high-bandwidth home services?

AT&T and TCI will surely take their time. But from a national perspective, perhaps the only question that really counts is whether America builds its advanced telecom infrastructure before, or at least not after, its major economic rivals. On the one score that ultimately matters, things seem to be in pretty good shape. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*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Corporate Strategies

Case Studies ♦ Trends ♦ Outsourcing

Briefs

BAD WORD OF MOUTH

Users may want a thorough test-drive of that new automated customer service system, as:

- 87% of dissatisfied customers will share their stories with nine to 10 people
- 13% of dissatisfied customers will tell as many as 20 other people

Source: International Customer Service Association, Chicago

China outsources Y2K

Egan Systems, Inc. in Holbrook, N.Y., has been named the prime contractor to help the government of China solve its year 2000 problem.

The Director General of the Department of Computer & IT Advancement, China's leading year 2000 agency, has estimated that there is enough remediation and systems upgrade work to keep Egan Systems busy into the year 2019.

Job searching

Santa Cruz, Calif.-based Tapestry.Net has launched Developers.Net, an online recruiting service (*www.developers.net*) for software developers.

Job descriptions are available on the Developers.Net World Wide Web site in a searchable database. To apply for a job, a developer sends his resume to Developers.Net via E-mail, and it is forwarded to the company.

A proven track record in retaining IS managers is a key factor in landing upper-level management jobs. In a survey of 1,400 CIOs:

- 90% said it is important for IT managers to demonstrate a history of retaining loyal staff
- 37% said the most effective incentive for keeping IT managers – other than compensation – is ongoing technical skills training

Source: RHI Consulting, Inc., Menlo Park, Calif.

ANDY SACKS

Bath & Body's Shelley Halfpap: "We've gone from crawling to running in . . . the customer relations department"

Listen harder to customers

▸ *Call-tracking improves Bath & Body response*

By Matt Hamblen

ONLY TWO YEARS ago, telephone operators at nationwide retailer Bath & Body Works took notes by hand when customers called to praise or pan the latest honeysuckle balm.

That process usually meant that only the loudest complaints or compliments were heard, and even then, they weren't always passed on to upper management, said Shelley Halfpap, manager of customer relations at the 1,000-store chain in Reynoldsburg, Ohio. The retailer receives more than 100,000 calls and letters from customers each year.

Today, the operators type more-detailed notes on all calls into PCs that are networked with customer management software from Quintus Corp. in Fremont, Calif. The system makes it possible to share more-subtle customer attitudes — including praise for products or service — throughout the entire company from a common database.

GOOD MOVE

The software has been in place only since January, so Halfpap said it is difficult to evaluate how it has changed the bottom line. Despite the cost of the software and added personnel, the heightened focus on customer service has been worthwhile, she said.

"We've changed so much in the last year that we've gone from crawling to running in terms of development of the

Bath & Body, page 36

Big integrators face backlash

▸ *Users avoid Big Six, pick local consultants for technical projects*

By Julia King

WHEN JIM KRASNER went shopping last year for a systems integrator, what he wanted was a company with deep technical expertise in the latest version of PeopleSoft, Inc.'s enterprise software.

What the Big Six vendors came back with was mostly advice on how to improve his pizza business.

Krasner, vice president of supply-chain management at $3.2 billion Domino's Pizza, Inc. in Ann Arbor, Mich., didn't take the advice. Instead, Domino's awarded an implementation contract valued at about $18 million to Cambridge Technology Partners, Inc., a $400 million systems integrator with about half the number of PeopleSoft consultants as Andersen Consulting, the biggest of the Big Six vendors. At Domino's, Cambridge is leading a team of experts from nine providers to implement 16 PeopleSoft application modules plus several third-party packages to more than 25 sites worldwide.

"The Big Six just didn't know how to deliver flexibility," Krasner said. Specifically, they insisted on sticking to their own cumbersome implementation methods, "even though we had a bias toward more rapid prototyping," he said. One integrator, in particular, Arthur Andersen, which is Domino's corporate auditor, "just couldn't get it that we didn't want them to re-engineer our processes," Krasner said.

Domino's isn't alone. In what a Gartner Group, Inc. report describes as a "growing backlash" against the largest integrators, more users are seeking out smaller, often local, integrators that have specialized expertise in a certain software application.

About 30% of Gartner's clients "go out of their way to avoid a large systems integrator

Big integrators, page 36

BRUCE BUTTON

Arthur Andersen "couldn't get it that we didn't want them to re-engineer our processes."
– Jim Krasner, Domino's Pizza

HR pros take steps to keep up on IS issues

By Barb Cole-Gomolski

THIS WEEK, three human resources professionals from Bank of Montreal will do something that might seem out of character: They will attend the Comdex/Canada '98 trade show in Toronto.

Their goal isn't to find job candidates but to sharpen their knowledge of information systems technology.

"The idea is to expose them to the computer industry," said Leslie Arril, a human resources manager who leads an IS recruitment team at the Toronto-based bank.

Recruitment specialists at a growing number of companies are looking to beef up their knowledge of IS. They need to do that to effectively attract workers in the midst of an IS labor crisis, according to staffing experts.

"Smarter organizations are

HR and IS, page 36

HR and IS

CONTINUED FROM PAGE 35

starting to send HR people to IT conferences," said Keriann Vogel, an analyst at Meta Group, Inc. in Stamford, Conn. The old way — relying on IS managers to keep human resources posted on changes in the computer industry — isn't effective, Vogel said.

If human resources professionals keep up with IS issues, IS managers don't have to explain the latest trend or hot skill. "It makes IS and HR more like partners in the business," said Steve Curd, senior vice president and chief information officer for the strategic services group at United Healthcare Corp. in Hartford, Conn.

At United Healthcare, the human resources representatives responsible for recruiting IS professionals are part of IS. That makes it easier for human resources folks to keep up with IS trends, Curd said.

HR AS CONSULTANTS

Human resources professionals increasingly find that they need to act more like consultants and provide recruitment advice to IS instead of just delivering commodity services, such as placing ads in newspapers and collecting resumes, said Dan Roberts, president of Ouellette & Associates, a Bedford, N.H., consultancy that specializes in IS culture change. To do that, human resources staffers need to boost their understanding of hot IS skills, he said.

KEEPING UP

Common ways that human resources professionals stay current on IS issues

- Attend computer industry trade shows
- Spend time in the field with IS divisions
- Read computer industry publications
- Research IS issues on the World Wide Web

Roberts said that change is the result of the IS labor shortage and the fact that IS professionals — who have historically done a lot of their own recruiting — are now too busy with the year 2000 problem and other projects.

TemPositions, a New York-based staffing firm, this fall will begin offering a four-hour course for human resources professionals that will serve as an IS primer and identify hot skills.

Eva Fujan, vice president of technical recruiting at systems integration giant Inacom Corp. in Omaha, said she stays current with IS trends by attending industry conferences and reading computer industry trade publications. In addition, she visits the company's branch offices and meets with IS managers to better understand their staffing needs, she said.

"I also do a lot of research on the Web," Fujan said.

Viewing online recruiting sites and vendors' and competitors' World Wide Web pages are effective ways to assess the IS staffing landscape, she said. □

Poll: IT pros wish they weren't

▸ Many would choose different college major

By Patrick Thibodeau

IF THEY COULD return to their undergraduate days, many IT workers say they would spend less time with Unix, networks and Windows and put more effort into getting to know Plato, Virginia Woolf and Pablo Picasso.

Nearly 40% of information technology workers said they would major in a different subject area if they could return to college, according to a new survey from George Mason University in Fairfax, Va.

Of the IT workers who said they would choose a different major, 56% said they would major in an unnamed nontechnical area. Another 26% picked education as their desired focus.

The number of IT professionals who wish they had majored in a different subject was just a bit smaller than the number of workers in other occupations who wish they had picked a different major, according to the survey of 400 college-educated workers in a variety of occupations.

YEARNING FOR A CHANGE

But survey results for non-IT college graduates were nearly reversed. Of the 43% of the non-IT workers who wished they had picked a different major, most picked technical areas: computer science, 15%; medical, 11%; engineering, 8%; or business, 16%. Nontechnical areas were picked by 31% and education by 12%.

George Mason officials took the survey's results as a sign that people want to balance their lives and fill gaps in their knowledge. And many in the survey are doing just that: 57% have taken college-level courses since graduation to expand their knowledge. The telephone poll targeted people who graduated from college at least 10 years ago and were between the ages of 30 and 55. □

Bath & Body

CONTINUED FROM PAGE 35

customer relations department," Halfpap said.

The change has made customer service more visible, requiring all parts of the company to consider ways to incorporate the new input into buying decisions and other plans.

"When we started evaluating software to do this, we thought our system would be faster, but that's not really the point," Halfpap said. "The biggest benefit is that we're recording and evaluating all the info from customers."

Halfpap advised other companies that consider such a system to expect to invest in more than software. "You almost need to double your customer service department, and you have a huge learning curve and a huge time element" in making other people in the company see the value of the change, she said.

The number of people dedicated to answering calls has grown from two last year to four, while another two read, record data from and respond to customer letters, Halfpap said.

LONGER, BETTER CALLS

Rather than spending less time per call, the agents have seen the average length of a call grow from two minutes to five because they ask for more details and record more of the calls.

Calls and letters address every topic, from praise for a new honeysuckle-scent hand cream to opinions on service personnel in stores.

Customer buying habits and attitudes will play an important role in influencing the company's move into sales of hard goods such as towels and accessories, Halfpap said.

Eventually, the system will be used to receive E-mail letters, but Halfpap is reluctant to start such a system unless the company is able to respond within 24 hours. "We're worried about three weeks' response time," she said.

Analysts said the tracking of customer attitudes has been a high priority of retailers such as Bath & Body Works in the past two years.

Installing such software "shows you are making customer service a priority," said Chip Gliedman, an analyst at Giga Information Group in Cambridge, Mass. Analysts said investments in customer service enhancements such as tracking software are one way a retailer can differentiate itself and improve revenue growth. □

Big integrators

CONTINUED FROM PAGE 35

for their implementation project," according to the recently released report on application implementation consultants.

More users are also turning to smaller, local integrators for postimplementation projects. It is often less expensive, and there are more vendors to choose from than before, users said.

European chemical giant Akzo-Nobel, with U.S. headquarters in Chicago, has completed a worldwide SAP AG implementation project in which Cap Gemini was the primary integrator. But it continues to customize and enhance the SAP software, which requires periodic help from consultants.

In Chicago, "local support is booming these days, and that makes it easier to not work with the Big Six," said Bram Reinders, information systems manager at Akzo-Nobel.

"You see younger people that have worked for Big Six companies going into business for themselves. They're tired of traveling and living out of their suitcases," Reinders said. "And prices are lower at these companies because they don't need to pay consultants for being away from home all week."

One such company is Clarkston-Potomac, which was established in 1991 by former consulting managers at Andersen Consulting.

Another integrator, CBSI, Inc. in Farmington Hills, Mich., is setting up enterprise application development centers in several cities across the country. That way, consultants and business experts from the client company can all work locally, which works to bring costs down, CBSI executives said.

But users should definitely look carefully before automatically disqualifying Big Six vendors, cautioned Vinnie Mirchandani, a Gartner analyst and author of the recent study of enterprise resource planning consultancies.

"It's fashionable to beat up on larger integrators, but from a risk management perspective, they are still the right choice for a number of companies," Mirchandani said. "If it's a multinational project with more than a two- or three-year rollout, a company should look only at the large firms."

On the other hand, "if it's just product knowledge, just go with the vendor's professional service organization," he said. □

SHORTS

New IS chief at Mercantile Exchange

Debbie Bonsignore has been promoted to senior vice president of information services at The New York Mercantile Exchange. Bonsignore, formerly vice president of application development, will oversee 115 information systems employees. She replaces Allen Feryus, who left earlier this year.

Supply-chain standard proposed

Supply-chain software vendor Manugistics Group, Inc. in Rockville, Md., and Cambridge, Mass.-based consultancy Benchmarking Partners, Inc. said they are trying to put together a working group to develop an Internet-based supply-chain standard for the automotive industry.

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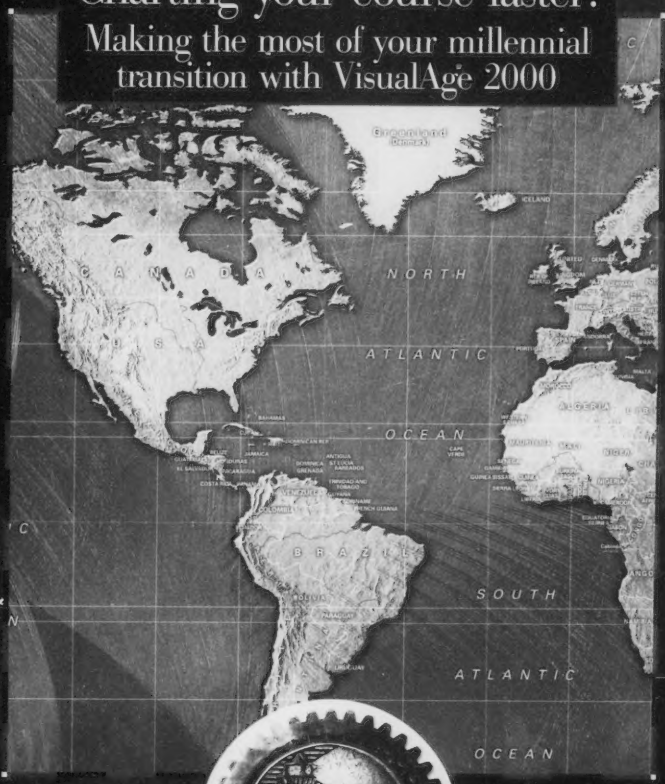

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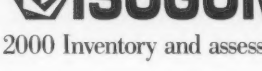

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Briefs

Slower growth

Financial services firms will roll out Internet-based applications at a much slower pace than previously estimated because of concerns about security and the inability to control network performance, according to a new report by Meridien Research, Inc. in Newton, Mass. Meridien has scaled back estimates that up to 60% of financial services firms will have Internet applications in place by 2000. It now predicts a 10% increase in usage by that time.

Site redesign

Netscape Communications Corp. last week unveiled its redesigned and expanded Netcenter portal site. Netcenter 2.0 includes 17 content channels and a variety of services, including software updates, a member directory and a free, permanent World Wide Web-based E-mail account that can be accessed from any computer with Internet access.

Filtering product

Lycos, Inc. last week introduced its free SafetyNet service, which filters out objectionable content while searching millions of Web sites. SafetyNet can be activated on the Lycos home page (*www.lycos.com*) and on all search results pages. A personal password activates the service.

What do you like most about the Web?

Ease of access	44.7%
Abundant, current and diverse information	37.5%
User-friendly	23.7%
Standardized platform	16.4%
Fast information distribution	14.5%

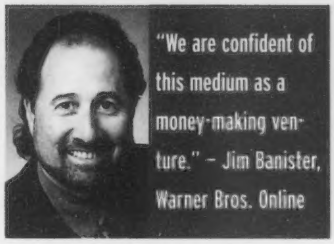
Base: Survey of 152 IS managers responsible for an average of 3,500 users with host access; multiple responses allowed

Source: MSI Consulting Group, Seattle

Warner Bros. Web show to debut

▸ *Users can tune in via DVD instead of high-speed connection*

By Sharon Machlis



THIS FALL, WARNER BROS. Online will unveil a weekly show for the Internet.

The program will use a combination of technologies to bring high-quality video and interactivity to users who don't have high-speed Internet connections, according to Jim Banister, vice president and general manager of Warner Bros. Online in Burbank, Calif.

Called "Drive-On" — the name for the written permission needed to enter a production studio lot — the show will feature behind-the-scenes stories about the making of Warner Bros. movies and TV shows. Consumers will need a digital video disc (DVD) player and the Drive-On disc to view the show, and they must log in to the Warner Bros. World Wide Web site to get the weekly "key" to unlock the current episode. The site also will feature a chat area while the show is in progress and, of course, a store to purchase show-related merchandise.

Warner Bros. Online will be betting millions of dollars in the next two years that consumers want interactive entertainment over the Internet. And company officials said this is the way to do it, at least in the short term, because they expect there to be close to 50 million DVD-compliant computers by the end of next year. By contrast, only 17 million U.S. households will have high-speed Internet access — via a T1 or cable television line, for example — by 2002, Forrester Research, Inc. predicts.

LEVELED FIELD

"The [technology] playing field between us and TV and film is leveled" when the Web is supplemented with DVD, the next generation of compact disc players that can hold much more data, Banister said.

Warner, page 38

Wimbledon taps Notes for Web site

By Roberta Fusaro

A Notes system made publishing Wimbledon action, such as Venus Williams' punishing serve, easier. Williams was eliminated in the quarter finals

SPORTS WRITERS AND WEB SITE producers at this year's Wimbledon used a simplified Notes-based publishing system to post their stories on the World Wide Web. The system let them run quick updates on matches during the tournament without requiring much technical knowhow.

The All England Lawn, Tennis & Croquet Club, which hosts the 121-year-old tennis championship, increased its usual five-person full-time information systems staff to 150 to handle the event. Shelley Galbraith, online services manager at the club, said the Notes application made it easy to bring in nontechnical help for the two weeks of competition, which ended yesterday, without having to provide lots of training.

"They don't have to know anything about the Internet or HTML coding," Galbraith said.

Wimbledon, page 38

Auto parts firm cashes in on Web

By Bob Wallace

PRECISION AUTO DESIGN founder William Weiner wondered how valuable a sales tool his new World Wide Web site would be. The orders from a single customer in Venezuela answered his curiosity by paying for the project almost twice over.

The Web site went live earlier this year, designed as a way to extend Precision's marketing reach beyond the readers of U.S. print advertisements in auto magazines and catalog mailings.

"Although there are people who prefer catalogs, I expect [catalogs] will go away in our lifetime." – William Weiner, Precision Auto

"I found we could go up on the Web for about the $60,000 that it costs to put out one of our thrice annual catalogs," said Weiner, who made the decision to bring his 21-year-old Campbell, Calif., auto accessories business to the Web. "Unlike catalogs and print ads, the site is an enduring investment."

Auto parts, page 38

Infoseek CEO: It's a portal battle

▸ *Says Disney deal marks third wave of 'net*

Last month, The Walt Disney Co. purchased a 43% stake in Infoseek Corp., a Sunnyvale, Calif.-based Web search engine site that is one of the 10 most heavily trafficked sites on the World Wide Web. The two companies announced plans to develop a new portal site with Starwave Corp. in Bellevue, Wash., which is owned by Infoseek. Starwave publishes Web sites for ABC News, ESPN, the National Football League and the National Basketball Association, among others.

Computerworld senior editor Sharon Machlis spoke with Harry M. Motro, president and CEO of Infoseek. He was previously senior vice president in charge of interactive and new business development at CNN.

CW: How are ad and sponsorship rates likely to change on the new portal site compared with the current Infoseek site?

MOTRO: I think it's too early to give any insight on that. Right now, we're really trying to communicate the transforma-

Portal battle, page 38

Auto parts on the Web

CONTINUED FROM PAGE 37

At the site (*www.precisionauto.com*), consumers and retailers can find a listing of products, from floor mats to car covers to chrome wheels, and order them by filling out screens online. The buyer must then call the company and pay for the products by credit card.

Those who use the site to order accessories receive a 10% discount. Precision items range in price from a $12 key chain to a $1,500 wheel.

STEP BY STEP

Precision plans to add electronic-commerce capabilities to the site in six to eight months, once its ordering system is upgraded and linked to the Web site to handle online sales, Weiner said. The Web accounts for 5% of the company's average daily sales. "But we have days where huge orders blow that average," he said.

Auto industry experts said Precision isn't alone in climbing on the 'net.

"The Internet has become such a widely used informational tool that automotive businesses big and small are getting onto it to keep up," said Tom Libby, director at J. D. Power & Associates, Inc.'s Troy, Mich., office. "If they don't, they become noncompetitive."

Other small auto accessories companies have turned to the Web to boost sales, largely by attracting new customers as Precision did, analysts said. As in other industries, the steps for auto industry companies are to launch a Web site, make it interactive to let shoppers select and view items and information and then add electronic-commerce capabilities. "It's one step at a time," Libby said.

Precision Auto put up its Web site for about the cost of one catalog

The bulk of the cost of the Precision project was from the design and creation of the Web site. Next came the cost of the 56K bit/sec. leased line to the Internet. Last came the server and related networking equipment from Cisco Systems, Inc., which totaled $3,500.

The Web site has helped the 20-person, $7 million company tap in to foreign markets it couldn't afford to reach because of exorbitant catalog mailing costs, Weiner said. Roughly 30% of the site's activity is generated by foreign shoppers.

The Venezuelan retailer, which hadn't known of Precision before the Web site, has already spent $100,000 with the company. "We've gotten several orders over $5,000 from Turkey — people who didn't know we existed before," Weiner said. A $5,000 order for auto accessories is considered large, he added.

PAYMENT PLAN

Going international hasn't initially raised any currency, payment or shipping considerations because parts primarily are paid for by credit card over the phone. Precision also accepts wired funds and money orders from international customers.

The growing success of Precision's Web site hasn't spelled the end of print advertising. "We're taking out smaller ads that tell people to visit our Web site," Weiner said.

"And although there are people who prefer catalogs, I expect [catalogs] will go away in our lifetime," he said. □

Warner show to debut

CONTINUED FROM PAGE 37

On the revenue side, money could come from advertisers, as it does in broadcast television, or by selling the discs to manufacturers to bundle with new systems or directly over the Web to viewers.

"We are in the middle of major negotiations," Banister said. "We are very confident of this medium as a money-making venture."

Warner's program will combine technologies to deliver high-quality video and interactivity

"An entertainment company has decided [this] will be a platform they can make money on," said analyst David Coursey, editor of "Coursey.com," a digital newsletter in San Mateo, Calif. Coursey sponsored the Digital Living Room conference, where the project was announced.

"They have big plans for this, but they're going to stick one toe in at a time and see if it gets bit off," he said.

Warner Bros. isn't the first to venture into the arena of Web-based broadcasting. Just last month, for example, Lycos, Inc. introduced the Internet program *Pseudo Romance*. The one-hour show ran three Saturday nights in June.

But the fact that Warner Bros. — which has been involved in blockbusters ranging from the first "talkie" (*The Jazz Singer*) to TV hits including *ER*, *The Rosie O'Donnell Show* and *Seinfeld* — is moving further into online programming has caught some attention.

"Can they build distribution? If anyone can do it, Time Warner can," said Seamus McAteer, an analyst at Jupiter Communications, Inc. Time Warner, Inc. is the parent of Warner Bros., Inc.

He said the company could use its TV shows to advertise the project and its magazines to distribute discs. Such online/off-line partnerships are becoming increasingly important on the Web.

"It all seems a little bit kludgy, but you never know what will work until you try it out," McAteer said. "Warner Bros. will probably learn from the experience even if it doesn't work." □

Wimbledon

CONTINUED FROM PAGE 37

Players registered for the tournament via E-mail, and their data was stored in a Lotus Development Corp. Notes database. Club reporters, sports writers and photographers also entered their stories and graphics into a Notes database. Then they simply pressed a "Publish" button to transfer their documents through a back-end server and live to the Web.

Forms were made into templates to ease posting. "We have tennis writers here who are still of the typewriter era," Galbraith said.

The Notes-based system also helped the tennis club send scores and statistics to broadcasters at the matches, said Jeff Lucas, information technology director at the All England Club.

The site (*www.wimbledon.org*) included player profiles, scores and match summaries. When the hit rate spiked — which usually happened as key matches were completed — the site crew adjusted by adding server nodes, said Brian Snitzer, IBM's webmaster for the site.

The average hit rate was 9,000 per day, with individual peaks around 25,000, Snitzer said.

Eventually, the Notes application might be expanded to deliver audio and video to users on a pay-per-view basis, Galbraith said.

The Wimbledon site was sponsored by IBM, which has Web-cast other fast-paced sporting events. The company, which owns Lotus, sponsored sites for last year's Wimbledon; the 1996 Summer Olympic Games in Atlanta; the 1998 Winter Olympics in Nagano, Japan; and the 1998 World Cup soccer championships. □

Portal battle

CONTINUED FROM PAGE 37

tional nature of this transaction.

We're starting the third wave of the Internet. We started out with search engines. . . . The second phase is what I call "search-plus" — search engines at the foundation. We've been adding a chat [feature], home pages. . . . Nobody has made the full conversion to a media company because they haven't had the assets to do it. Now that we're with ESPN, ABC, Disney . . . we will cross the chasm into the third wave.

CW: Why all this interest in portal sites?

MOTRO: People realize that consumers really want to get their needs met on the Internet. There are three areas people are interested in: finding things, exploring and doing.

People realize that consumers don't just respond to anything — you have to have a high-quality, differentiated experience. It takes brands and depth of content, not just breadth.

CW: What would your advice be to Fortune 1,000 companies looking to move on to the Web and electronic commerce?

MOTRO: Work with Infoseek [laughs]. The reason that people are interested in portals is that's where all the users are. If you're a Fortune 1,000 company and you're not involved in a portal in some way, you're putting your business at risk.

CW: What are the pitfalls of the Web?

MOTRO: It takes a great amount of technical expertise. It takes Internet know-how, it takes marketing, it takes financing, it takes branding. . . . It's not a battle for the weak at heart.

Infoseek's Harry M. Motro

CW: Were there other suitors for Infoseek? Why partner with Disney?

MOTRO: There's only one Disney. . . . It's that clear. Of all the assets in the world, all the companies you could partner with, you'd be crazy not to partner with Disney. □

The Enterprise Network

LANs • WANs • Network Management

Briefs

Top NT security problems:

- NT domain directories are complex to manage, making it easy to leave security gaps
- The Windows NT Administrator account doesn't lock out
- No default auditor account; audit logs can be altered
- NT allows remote administration, which can lead to outside hacks

Base: Survey of 500 Windows NT accounts

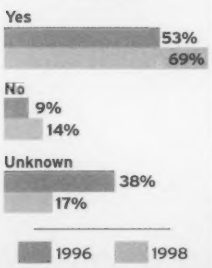
Source: Gartner Group, Inc., Stamford, Conn.

Centillion makeover

Bay Networks, Inc. has detailed a makeover and extension of its Centillion line of LAN switches. The plan calls for a new version of the Model 50 LAN-to-ATM switch, capable of Ethernet, Token Ring and Asynchronous Transfer Mode (ATM) switching.

The vendor plans a 24-port Ethernet switching module for the Centillion 50 and 100 switches. Also due from Bay are three ATM switches: the high-end 16-slot Centillion 1600; the midrange eight-slot 1400; and the workgroup four-slot 1200. The switches have 10G, 5G and 2.5G bit/sec. of switching capacity, respectively.

Has your organization been the target of information espionage?



Base: Survey of 320 Fortune 1,000 companies

Source: Warroom Research, Inc., Annapolis, Md.

It isn't always a network problem

By Patrick Dryden

PERFORMANCE MANAGEMENT

WHENEVER CLIENT/SERVER applications don't respond promptly, users typically blame the network. But information systems managers armed with the tools to diagnose performance problems say the network causes slowdowns in less than one-fourth of cases.

More frequent causes include overloaded servers and PCs, mistuned databases and applications that weren't designed with slow wide-area network links in mind, according to IS managers.

Clearly understanding the role of each piece involved in a transaction can speed troubleshooting, prevent unnecessary upgrades and save the network specialists' reputation.

Users and even other IS staff members fall into the "network is slow" trap, said Jeremy Griner, network administrator at Susquehanna Partners G.P., an investment firm based in Bala Cynwyd, Pa. They bring even simple problems to the network group first, he said, without gathering all the symptoms and trying to solve the problem locally.

That's because "everything

Network, page 40

Don't always blame the network

Situation: Business managers and end users experience poor performance while running client/server applications.

Assumption: Response time is slow because the network is broken or congested, just as an accident or heavy traffic on the highway slows a commuter's drive time.

Clarification: Diagnosing service slowdowns reveals network-based causes in less than 25% of cases. More common problems include overloaded servers, poorly written applications and complex interactions.

Do you know if you've been hacked?

By Laura DiDio

THE AVERAGE CORPORATE network is attacked by hackers 12 to 15 times each year, according to a survey by the Computer Security Institute and the FBI.

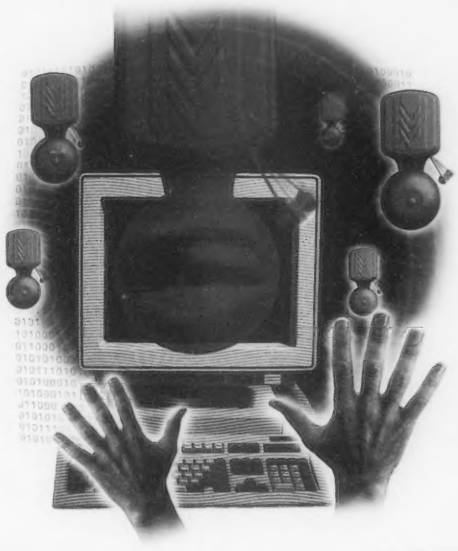
Of the 563 users polled, 73% said hackers had penetrated their networks. But 18% said they had no idea if, or how often, their systems had been invaded.

In response, many security consulting firms are training their clients to recognize the tell-tale signs of a system or network invasion.

In some companies, up to 98% of attacks go undetected, according to the Defense Information Systems Agency (DISA) in Washington. Even in security-conscious government agencies, more than 70% of the test hacks DISA conducted went undetected.

Attacks such as E-mail bombs

Hacked, page 40



GREG STEVENSON

Who will help you migrate from OpenMail?

By Roberta Fusaro

COMPAQ COMPUTER CORP. is working hard to move users from Hewlett-Packard Co.'s OpenMail to Microsoft Corp.'s Exchange. So is HP.

The two are in a marketing spat over which will pull in the most business from users wanting to move some or all of their users from OpenMail to Exchange. Several weeks ago HP announced that it would work with Microsoft to help large users migrate; Digital Equipment Corp., which is now part of Compaq, shot back by beefing up its migration program with training and network design components.

Daniel Blum, senior vice president and principal at The Burton Group, a Salt Lake City-based consultancy, said users of older mail systems such as

OpenMail, page 40

• Mobile computing

Users: Phones are smart enough already

By Kim Girard

ALTHOUGH SOME VENDORS are pushing new devices that combine the function of a phone with that of a personal digital assistant, users are questioning whether they really need more from their cell phones.

Nokia Corp. and Ericsson, Inc. last week announced a plan to jointly develop handheld phone/data devices with Concord, Mass.-based handheld manufacturer Psion PLC, using Psion's EPOC operating system. Motorola, Inc. also intends to join the alliance.

The joint venture, called Sybian Ltd., will license EPOC to smart phone and communicator manufacturers. The category includes devices such as the Nokia 9000 Communicator, a phone that can be used for E-mail, faxing and contact management that operates on a Global System for Mobile Communication (GSM) network and other devices with enhanced paging, messaging and data functions.

But most users "don't even use memory dialing" on the cell phone they currently use, said Iain Gillott, an analyst at Inter-

Phones, page 40

Network problem

CONTINUED FROM PAGE 39

beyond the user's desktop is 'the network' to them," said Theo Forbath, senior consultant at Northeast Consulting Resources, Inc. in Boston. "Without a way to measure and prove network performance, network managers have to sit and take it," said Charles Hebert, president of Southernview Technologies, Inc., a consultancy in Atlanta.

Griner said his group turns to remote network monitoring probes "to prove that packets get from one place to another." Then the historical traffic reports reveal increases in server or application activity, he said.

"We are constantly defending our turf."

– Jeremy Griner Susquehanna Partners

Chrysler Corp. uses similar tools. "We keep a scorecard in the operation center comparing the cause of performance problems," said Michael Hardy, network management specialist at Chrysler in Auburn Hills, Mich. "So far it reads Lotus Notes seven, network zero."

Constant performance monitoring lets the IS group at Nabisco, Inc. analyze slowdowns as soon as field sites complain, said Alan Jarashow, project manager of the network planning and design group at Nabisco in Parsippany, N.J.

For example, a WAN link couldn't support the load when lots of users in one business group began running a sales forecasting application, Jarashow said. "We had the trend analysis to know how to right-size the line without paying for bandwidth overkill." In 95% of cases, though, the network isn't the bottleneck, he said.

At Norfolk Southern Corp., for example, a problem initially blamed on the network actually is caused by Cobol subroutines that don't free memory after they finish running on a Unix server, said Hugh Starling, manager of client/server systems at the Norfolk, Va., railroad.

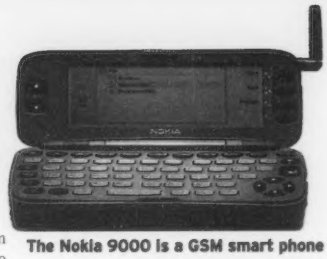
Collecting performance reports from tools that watch the network, servers and databases doesn't just reveal where the problem lies, Starling said. "We can figure out how to focus the least amount of resources to get the biggest performance result," he said.

Such knowledge "saved a small department from spending a significant amount of its budget on a LAN upgrade," said Bill Niemi, principal technology architect at Boston-based Fidelity Investments.

By monitoring the round-trip response time from a user's PC, the IS group showed that the budgeted improvement to LAN speed wouldn't fix the performance problem, Niemi said.□

Phones are smart enough, users say

CONTINUED FROM PAGE 39



The Nokia 9000 is a GSM smart phone

national Data Corp. (IDC) in Austin, Texas. "They pick it up, make a phone call and turn it off." Gillott also questioned the worthiness of telephones that store a lot of original data on the device, instead of letting the user download the information from the Internet or a corporate network as needed for temporary use.

Devices such as the Nokia 9000, which costs about $900 and provides telephone, fax, E-mail and Internet access and contact information, don't make sense when a user could buy a $150 cell phone and a 3Com Corp. PalmPilot for $200 to $300, Gillott said.

But the question is often one of personal choice: whether a user prefers to carry one or two devices — and the quality of those devices.

SIZE MATTERS

Ed Barrett, general manager of emerging technologies at Rosenbluth International, Inc., a travel management company in Philadelphia, said he has been dissatisfied with the size of telephone screens for reading data.

But "if a larger screen makes the cell phone bigger, I don't want that," Barrett said. He has been looking into wireless cellular service plans for Rosenbluth's users. "Until that issue is resolved, I am willing to have two devices."

"If you are trying to build one little box to be a jack-of-all-trades, it will be the master of none," said Stanley Dobrowski, supervisor of data processing operations at the Bergen County Utilities Authority in Little Ferry, N.J. He uses a variety of Hewlett-Packard Co. palmtops and also carries a Motorola cell phone. "To be able to talk into my palmtop doesn't do anything for me."

Still, some users are demanding more functionality from their phones. According to recent IDC research, about 11% of 1,000 business users surveyed want to connect to the Internet using a phone, while nearly 24% wanted to access E-mail on a handset.

Overall, users want their data stored on a network, instead of on a device, if they are going to use a handset, said IDC analyst Julie Rietman.

"The information is quicker to roll out," she said.

"It's on the server," and the size and weight of the phone doesn't increase to accommodate storage, Rietman said.□

Hacked

CONTINUED FROM PAGE 39

and viruses are obvious, but few companies can detect a logical attack — a planned invasion of the network, according to Winn Schwartau, a partner at The Security Experts, Inc. in Seminole, Fla. The consultancy attacks the networks of its clients to find security holes. "In the last six years, we've performed about 2,300 sanctioned hacks for our clients, and we've only failed to penetrate the networks twice," Schwartau said.

Gary Loveland, a partner at Price Waterhouse LLP's Information Security Risk Management Group in Los Angeles, said there are several obvious things to look for. They include unknown accounts added to the system and file server, an excessive number of log-on failures and dial-in attempts, any unexpected system or network crashes, unauthorized changes to system software and system files or high system activity when no users are logged on, especially during off-peak usage hours.

"Once they've successfully penetrated your system, hackers frequently create accounts for themselves so they can continue to get back in. And they typically will also attempt to give themselves administrator-level backdoor access into the network," Loveland said.

Bob McKee, director of information management security at The Hartford Insurance Co. in Hartford, Conn., said his firm has a "very formal" set of policies and procedures and makes those policies a part of every new employee's orientation. On the product side, The Hartford proactively monitors and tracks all network activity via a series of firewalls and intrusion detection and auditing packages that can detect "attacks in progress."

McKee's group of 22 security managers also performs regularly scheduled audit and inventory checks and maintains strict password controls.

For further protection, the company has established a demilitarized zone for its World Wide Web servers to effectively isolate the corporate networks from the Internet. "There is no such thing as being too alert or vigilant," McKee said.

"If you don't have at least a basic detection mechanism, [for example] audit trails, intrusion detection, behavioral anomaly detection, you'll never know if your systems are hit," Schwartau said.□

OpenMail

CONTINUED FROM PAGE 39

OpenMail are motivated to move to Lotus Notes and Exchange because the older systems may not be year 2000-compliant and may not integrate as well with Microsoft Office and Windows 95 and 98.

When HP entered into a pact with Microsoft several months ago and adopted a hybrid strategy for OpenMail, a lot of people got the message that OpenMail wasn't a priority for the company anymore, Blum said. HP's migration services are aimed at cutting its losses and generating at least some revenue by helping users move to Exchange, he said.

Kvaerner ASA is switching to one system from five.

But several large OpenMail shops said they aren't interested in either service and will stick with what they have.

One systems manager at a large Midwestern insurance company said OpenMail has worked well for his company, which uses Microsoft Outlook as a messaging client on the OpenMail backbone.

"Microsoft and HP now have a partnership, and it seems as though HP can support Outlook very well," said the manager, who requested anonymity.

But Kvaerner ASA, an international engineering and construction group based in Norway, is making the switch with Compaq's help, not HP's.

Within its business units, Kvaerner has 26,000 users on five different legacy mail systems. Most use OpenMail to communicate. The company needed to switch to one system to ease support issues, cut costs and make it easier to share information worldwide. And officials said the future of Exchange seemed brighter than the future of OpenMail.

Jorge Piener, vice president of group information technology at Kvaerner, said the company chose Compaq's migration service because of its breadth of experience with its own Exchange program and because Compaq/Digital has been Microsoft's main partner for implementing Exchange.

Compaq, through the service division of Digital, has the most commonly used migration service. Compaq has signed contracts to help install 3 million Exchange seats this year — up from 1 million seats a year ago.

Nina Burns, president and CEO of Creative Networks, Inc., a Palo Alto, Calif.-based research firm, said that increase is partly a function of Compaq's aggressive marketing of its migration service and its ability to roll out the service more quickly than its rivals. Quicker rollout leads to quicker cost savings for users, she said.

She didn't have comparative figures available.□

Software

Databases • Development • Operating Systems

Briefs

Top factors in project success

- User involvement
- Executive management support
- Clear statement of requirements
- Proper planning
- Realistic expectations
- Other

Base: 365 IT executive managers; margin of error +/- 4%

Source: The Standish Group International, Inc., Dennis, Mass.

International Y2K tools

STG International LLC in Princeton, N.J., has developed an Internet-based application that was designed to help companies with non-English-speaking employees overcome the year 2000 problem. The product, dubbed PC-Aid 2000, provides tools to test PCs for hardware and software that might not function come Jan. 1, 2000. The tools are available in Chinese, Spanish, Korean, French, German, Portuguese and English.

AltaVista upgrade

Compaq Computer Corp. in Houston last week announced Version 2.0 of its AltaVista Process Flow software to help modify workflow processes. The product lets users change pieces of their manufacturing applications and keep operations running at the same time. Version 2.0 includes increased support for World Wide Web-based applications and support for Java, ActiveX and SAP R/3 applications. The software will be available this month.

Integration tools rough around edges

By Craig Stedman

AS USERS STRUGGLE to get new business applications such as SAP AG's R/3 to talk to one another and to their older systems, a multitude of application integration software is arriving to help streamline the task.

The packaged integration software is expected to save time and money compared with writing custom code. But early adopters still are trying to prove that many of the products are up to the job. They and industry analysts cited a list of features that could be beefed up (see chart).

The new packages combine integration engines with workflow capabilities and provide prebuilt links to popular applications and tools that hook the software to homegrown systems.

Farmland Industries, Inc., a $9.1 billion cooperative that sells a wide range of farming and food products, this month

Integration, page 42

HELP WANTED

Application integration software still needs improvement in:

- Simplifying development of custom application links
- Responding to errors such as failed transactions
- Mapping between inconsistent sets of business rules
- Keeping systems in sync after application upgrades
- Load balancing and other application management issues

Source: Hurwitz Group, Inc., Framingham, Mass.

Insurer, bank save with archival system

By Roberta Fusaro

CHICAGO TITLE CORP., one of the largest providers of title insurance and other real estate-related services in the U.S., needed to make it easier for its 4,000 far-flung agents to access policy information from the company server in Chicago. The $1.3 billion insurer has agents stationed as far away as Guam, Canada and the Virgin Islands.

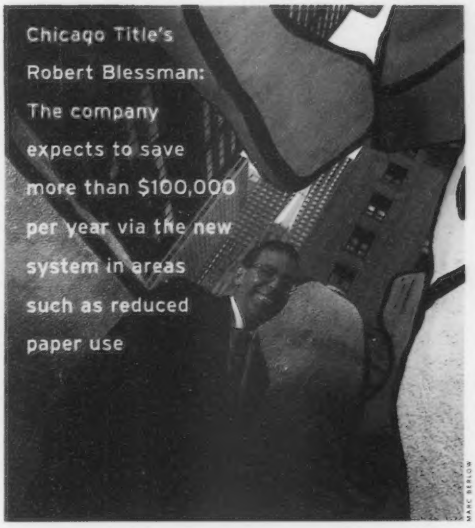
Fifth Third Bank in Cincinnati wanted quicker access to its account data — customer statements, reports, loan documents and check images — stored on rolls of microfiche and printed out for bank employees and managers. The goal was to be able to respond to customer requests without lag time.

E-ARCHIVING

Those disparate business problems found a common answer in electronic document warehouses, software that lets users archive their records electronically and retrieve information as needed, usually right on their PC screens. The market for that technology will grow 30% per year for the next five years, according to a 1997 Gartner Group, Inc. report.

Hadley Reynolds, a research analyst at The Delphi Group, said such systems can provide a good single point of access for all documents. Products in that market include systems from

Archival, page 42



Chicago Title's Robert Blessman: The company expects to save more than $100,000 per year via the new system in areas such as reduced paper use

MARC BERLOW

UPGRADE

Marimba adds software distribution

By Carol Sliwa

MARIMBA, INC. and its well-spoken CEO, Kim Polese, were hot tickets in the computer industry in 1996, when the company was launched with the backing of high-profile investors.

But until the release of the third version of its Castanet software three weeks ago, the company didn't have a product that corporations were burning to use.

Now companies are giving Marimba's software a second look. Castanet 3.0 was designed to distribute software to end users and to manage installation of the applications. Past versions of Castanet focused on pushing out Java applications and World Wide Web content, which limited its appeal.

The latest version has been broadened to permit distribution of applications written in

Marimba, page 42

Kiosks bring City Hall business to citizens

▸ *Residents get easier access to services, records*

By Sharon Gaudin

SAN FRANCISCO is trying to bring City Hall to its residents.

The city two weeks ago became the second in the country to use kiosks to deliver information about city services to residents who can't get to City Hall or don't have the time.

"Instead of people, especially the elderly, coming to City Hall, we're trying to bring information they need closer to them," said Alexander Mamak, director of public affairs at San Francisco's Department of Public Works. "We had to do something that would be no extra cost to the city with existing personnel. Kiosks were the answer."

Residents who use the kiosks can check on a permit, apply for a license, report a snow removal or cleanup problem, or get information on community activities, programs and events.

San Francisco is following in New York's footsteps. The Big Apple started to use the kiosks

Kiosks, page 42

Kiosks for citizens

CONTINUED FROM PAGE 41

two years ago and now has them in all five boroughs, placing them in train stations, large office buildings and the World Trade Center.

San Francisco put up its first kiosk in a subway station, and Mamak said he hopes that about 10 more will go up in the next year.

The kiosks are produced by ObjectSoft Corp. in Hackensack, N.J. The software and application development tool company rents out the tools to what may be a growing number of municipalities.

Dave Sarna, chairman of ObjectSoft, said that to build the kiosks, his company needed a system that would work on a stand-alone basis in each location but that would be able to access information on mainframes, Unix machines and other computers within city government.

Informational kiosks with screens such as this one are located in train stations and large office buildings in all five boroughs of New York and in San Francisco

Sarna said one of the tools he used to make that compatibility happen was Microsoft Corp.'s BackOffice, which had the technology components he needed.

EFFICIENT MAINTENANCE

When a citizen requests information at a World Wide Web site, the Active Server Page feature of the Internet Information Server dynamically creates a Web page to present the information, Sarna said. That means ObjectSoft has to maintain only the database and templates, instead of thousands, if not tens of thousands, of Web pages.

The SNA Server component of BackOffice connects with the city's mainframes, and the Commerce Server component handles transactions such as license payments. Sarna used the Microsoft Transaction Server to monitor transactions and make sure they go through correctly.

Mamak said the city isn't ready to do electronic commerce over the kiosks yet, but he added that he hopes that will happen within a year. New York already handles commerce over its kiosks. □

Archival

CONTINUED FROM PAGE 41

Mobius Management Systems, Inc., PC Docs, Inc. and Documentum, Inc.

Chicago Title used a mainframe-based document management product called Infopac from Mobius in New Rochelle, N.Y., but found that documents were difficult to access and tough to manipulate.

For example, Chicago Title field agents who needed to check financial results at the end of each month often had to wait two or three days for information systems staffers to pull the information off mainframe servers and then fax it to the agents.

LESS OF A WAIT

So the company recently rolled out Mobius' Electronic Document Warehouse (EDW) suite. Its DocumentDirect software lets users access that same information themselves over the company intranet through a browser, said Robert Blessman, Chicago Title's vice president of customer service.

The system can archive up to 750,000 pages per month in a wide variety of formats. Blessman said the company expects to save more than $100,000 per year via the new system in areas such as reduced printing costs, paper use and overnight mail service. But he said the company expects to save even more in employee efficiencies.

The software lets users access information over the company intranet through a browser.

For example, the EDW suite lets users strip data out of reports and automatically enter it into a spreadsheet or similar document for customer analysis, Blessman said. "They save time by not having to rekey that data manually," he said.

Ed Dressman, vice president of the information systems group at Fifth Third Bank, said the company has saved money, become more productive and opened itself up to the world of data mining by moving off microfiche. The bank moved to the EDW suite last June and was microfiche-free by January.

Now documents — such as customer statements and operational reports — are available via the company intranet to anyone with security clearance, Dressman said. □

Marimba

CONTINUED FROM PAGE 41

Visual Basic, C and C++. It also includes new management features that let information technology administrators customize installations, make changes easily and control user access.

USER DEMAND

Its management suite is particularly useful to FirstPlus Financial, Inc. The Dallas-based institution plans to directly deliver a loan application to more than 2,000 users' desktops.

Because workers typically use only part of the application, FirstPlus plans to use Castanet to deliver a different desktop configuration to each department, said George Santillan, a principal at Dallas-based Demiurge Software, Inc., which is overseeing the FirstPlus project.

Bell Atlantic Corp. turned to Marimba because it has an extremely complicated Windows-based application that it must distribute to 500 engineers located at 50 sites. The application, called Opera, contains at least 3,000 rules and 7,000 fields of information on hundreds of forms to help engineers design sophisticated electronic systems. In addition, the data needs to be updated on a fairly regular basis.

Using their LANs, Bell Atlantic's IT staff in the past had to install upgrades by uploading the application to file servers at the local sites.

But they worried about the reliability of that system, said Gary Lazarus, a member of Bell Atlantic's technical staff in White Plains, N.Y.

Now, Bell Atlantic programmers simply put the application (or changes to it) on Marimba's server-based "transmitter," and the update is pushed to the remote file servers. Those file servers are equipped with Marimba "tuners" that receive the changes in a scheduled fashion.

The Opera application saves Bell Atlantic about $5 million per year, so the $10,000 investment in Marimba's Castanet technology made sense, Lazarus said.

SATISFIED CUSTOMER

Illinois Power Co. in Decatur had a Java-based customer service application, but users complained that it took too long to download. So they didn't use the application as much as the company had hoped they would, said Jan Stiles, an IT systems designer at the company.

With Marimba's Castanet technology installed, the long waits are gone, Stiles said. "All you have to do is click on the start button." □

MARIMBA'S CASTANET 3.0 INCLUDES:

- **Infrastructure Suite:** Client/server software to transmit and receive software updates. Also includes security components to manage digital certificates
- **Production Suite:** Tools to prepare and publish applications written in any language
- **Management Suite:** Tools to remotely manage software installations and access rights, customize applications and generate reports

Integration

CONTINUED FROM PAGE 41

plans to pilot CrossWorlds Software, Inc.'s integration technology. The software will link Farmland's R/3 applications to systems used by the 500-plus local farming cooperatives with which it does business.

Dick Weaver, technology manager at Farmland's petroleum and crop production business units, said the specialized nature of the local systems requires the Kansas City, Mo., firm to write its own interfaces at that end. But CrossWorlds' development tool kit "is not where it needs to be," he said.

So Farmland hired the Burlingame, Calif., vendor to do most of the development work. The CrossWorlds software also isn't cheap: Farmland is paying more than $2 million "basically just to get this off the ground," Weaver said. "And we've got a lot more ahead of us."

But that price is about one-third of what it would have cost to develop a full set of custom integration software, he added.

Aided and abetted by those kinds of cost savings, demand for application integration software is growing quickly, according to International Data Corp. in Framingham, Mass. The research firm counted $98 million worth of sales last year, which is up 84% from the 1996 total. But that doesn't mean the products are mature.

"There's a huge business need for this technology, but it's just a wild frontier right now," said Judith Hurwitz, an analyst at Hurwitz Group, Inc., also in Framingham.

Federal Express Corp. is using Vitria Technology, Inc.'s BusinessWare software to shuttle information on the packages that come into FedEx's Memphis hub to shipment managers and other users who prepare the freight for delivery.

FedEx also is interested in using software such as Vitria's to tie together different distributed applications. "But some of the things you really need to roll this across an enterprise are still missing," said Dick Davis, manager of architecture consulting at the FDX Corp. subsidiary.

For example, error-handling capabilities and technical documentation could stand to be more thorough, Davis said. "It's a very new space." □

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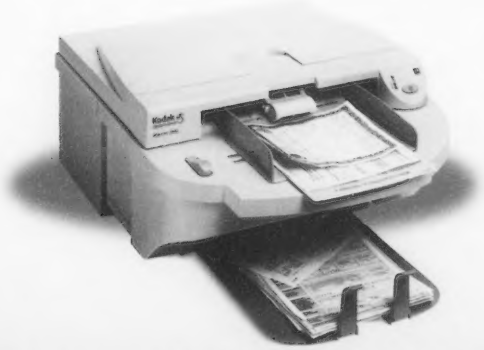

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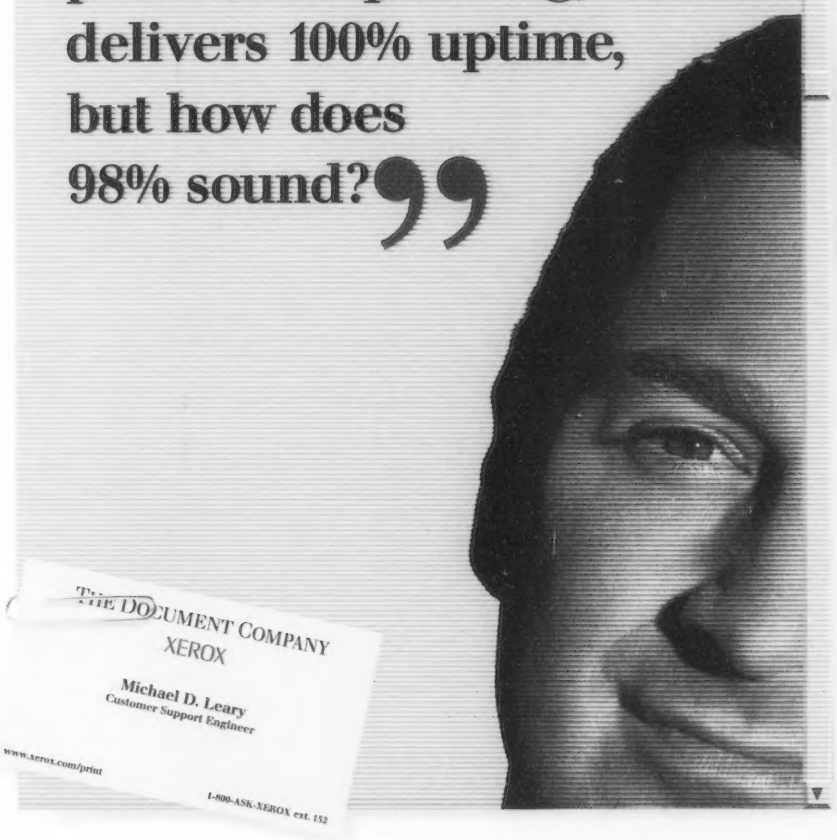

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Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

HANDS UP

The worldwide market for handheld computers from such vendors as 3Com Corp. and Hewlett-Packard Co. grew 65% last year, with total shipments reaching 2.4 million units.

Source: Dataquest, San Jose, Calif.

On the storage front

Storage Technology Corp. in Louisville, Colo., last week detailed plans for a 20G-byte tape drive that will use a new linear recording technique and support mainframes plus Unix and NT servers. The drive, called Eagle, is due to ship by year's end. This month, StorageTek plans to announce a version of its flagship 3490-compatible TimberLine mainframe drive with native capacity doubled to 1.6T bytes. Meanwhile, EMC Corp. in Hopkinton, Mass., this week will add Fibre Channel hub support to Unix versions of its Symmetrix disk storage subsystems.

Integration products

IBM last week expanded its ENetwork family of host integration software with new products that let users access legacy data from multiple operating and network environments. Additions include a communication server for Windows NT; a TN5250 server, which gives dumb-terminal users access to AS/400 applications; and a hot-standby feature that ensures connections to a host keep functioning even when a server is down.

Gateway adds Xeon

Gateway, in North Sioux City, S.D., last week announced two workstations based on Intel Corp.'s Xeon chip. The E-5200 workstation is for two-dimensional and entry-level 3-D computer-aided design (CAD) applications. The E-5250 was designed for high-end CAD. Pricing is from $2,500 to more than $9,000.

Amdahl's muscle is not the point

▸ *Real money-saver is partitioning technology*

By Jaikumar Vijayan

AMDAHL CORP.'s recent announcement of a 1,000-MIPS system could trigger a battle for performance leadership in the mainframe market.

But it is really the host of software makers that have signed up to support Amdahl's just-launched Multiple Server Facility (MSF) option that will have a more immediate impact on users [CW, June 29].

MSF helps cut software costs by letting users partition their mainframe into multiple servers and run separate applications on each partition. Previously, the cost of running such software was based on overall system capacity. MSF makes it possible for users to pay only for the portion of the mainframe on which the software is running.

Few companies are even close to needing a 1,000-MIPS system. But almost all of them are looking for ways to hammer down historically high mainframe software costs, users and analysts said.

"I think IBM will definitely [have to] react to this," said Ronald Akosah, a senior information technology asset analyst at the Student Loan Marketing Association (Sallie Mae) in Reston, Va.

Partitioning technologies have been available for some time, "but Amdahl is carrying the game a little further in terms of refinement," Akosah said. "It gives Amdahl an advantage in situations where software costs are a big factor" in mainframe purchase decisions.

> **"I think IBM will definitely [have to] react to this."**
> **– Ronald Akosah, Sallie Mae**

Several software makers quickly announced support for Amdahl's MSF. Those vendors include BMC Software, Inc.; Boole & Babbage, Inc.; Platinum Technologies, Inc.; and Amdahl's own software group. And it is only a matter of time before other vendors follow suit, users and analysts said.

SMARTER USERS

"I think vendors are realizing that customers are becoming more sophisticated in dealing with software issues," especially in situations where they have a choice of going to different vendors, said Kevin Berry, a senior contract analyst at Norwest Services, Inc. in Minneapolis.

Meanwhile, at 1,000 MIPS, Amdahl's CMOS-based Millennium 800 Series mainframes, which are expected to start shipping early next year, will be

Amdahl, page 48

AMDAHL'S MAINFRAME MOVES

Millennium 800 Series

- Nearly 1,000-MIPS capacity
- Fibre Channel storage connectivity
- Ships early next year

Multiple server feature

- Lets users create multiple servers within a system
- Allows cheaper system consolidation
- Available this month

Dell uses Xeon chip in corporate quest

By April Jacobs

DELL COMPUTER CORP. packaged a lot more than Intel Corp.'s Xeon chips into its workstation and server announcement last week. Seeking to woo corporate customers, the Round Rock, Texas, computer maker announced new service and support programs aimed at higher-end users.

Dell's announcement included the following:

- A Certified Systems Engineer program to ensure its service-partner technicians can support complex networks.
- A server integration program that lets buyers have custom software and hardware installed on Dell's PowerEdge servers.
- Integration services to make sure those systems are up and running properly.

"They have customized their products and support services to meet our needs. Whenever we have a problem, they can consistently come back with two or three options in solving them," said Steve Gardner, advanced technology and integration analyst at Nasdaq Stock Market parent company NASD, Inc. in Rockville, Md.

"Every hour that we don't have to spend setting up a machine means a lot," he added.

Those services, along with new Pentium II Xeon-based workstations, servers and a storage offering, should help bring Dell closer to the enterprise, said Roger Kay, an analyst at International Data Corp. in Framingham, Mass.

"It looks like they may be catching up with the HPs and IBMs," said Rick Hartley, senior systems engineer at Kansas City, Mo.-based Sprint Corp.

Hartley said Sprint already is testing Dell's 6300 PowerEdge Xeon-based servers and plans to use them for file-and-print and Oracle database applications.

Dell, page 48

Dell's enterprise strategy includes:

- Service deals with Unisys and Wang
- Xeon-based workstations and servers, ranging in price from $4,000 to $20,000
- Certified Systems Engineer program

EC renews hardware contract

By Kristi Essick
LONDON

THE EUROPEAN Commission has renewed a contract under which Olivetti Computers Worldwide will be the sole supplier of PCs to the government body.

Under terms of the agreement, Olivetti will provide several thousand new PCs to the commission and Wang Global Belgium will provide the integration and support services to implement the machines.

Wang Global is the new name for Olivetti's information technology services company, Olsy, which was acquired by Wang Laboratories, Inc. earlier this year.

Olivetti and Wang are calling the contract proof that the companies will continue to work closely with each other. Olivetti and Olsy have a long-standing relationship with the European Commission, with Olivetti providing hardware and Olsy providing services.

The contract spans the remainder of this year and all of next year, the companies said.

Financial terms of the contract weren't disclosed.

Essick writes for the IDG News Service in London.

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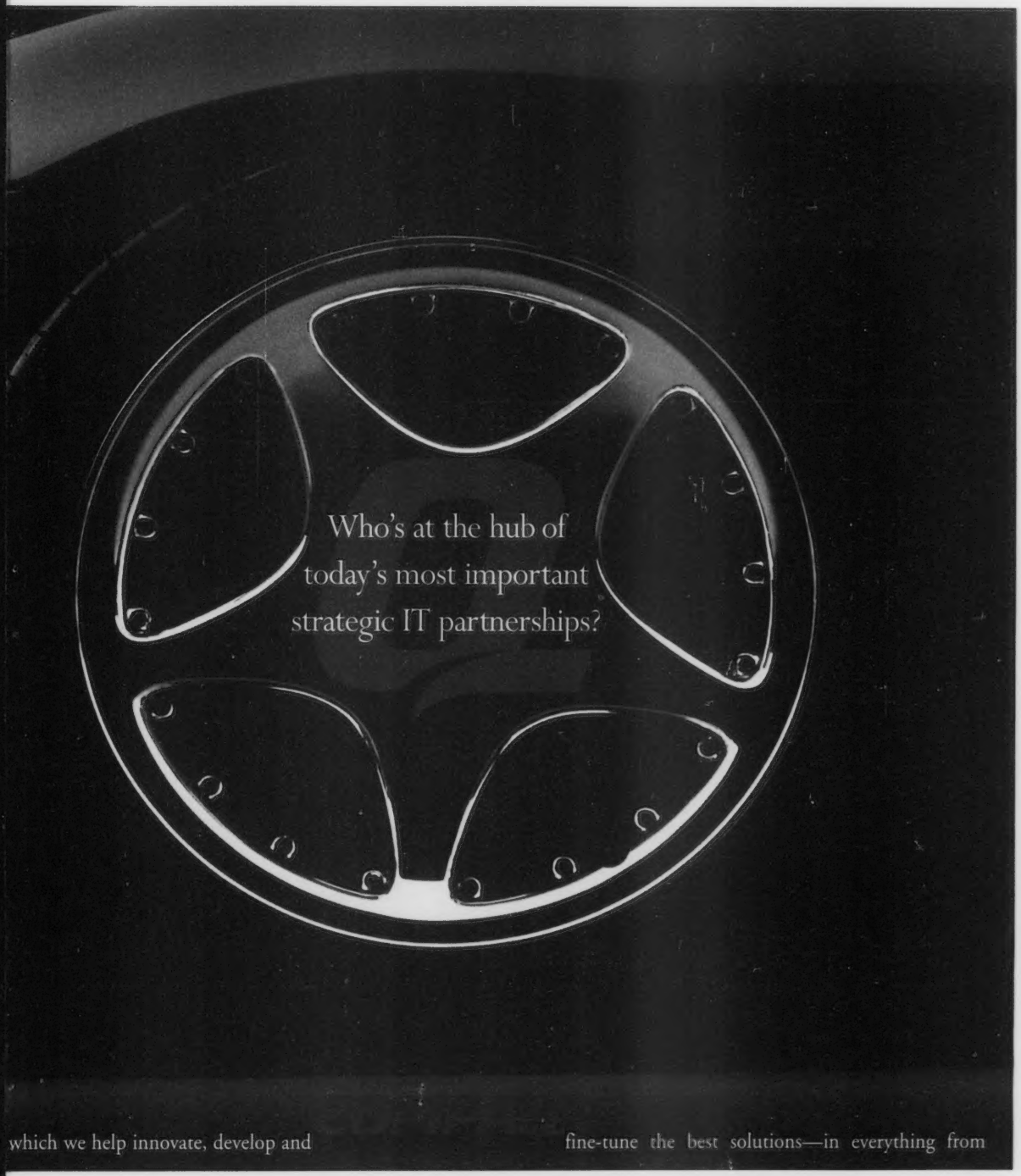

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Amdahl's muscle not the point

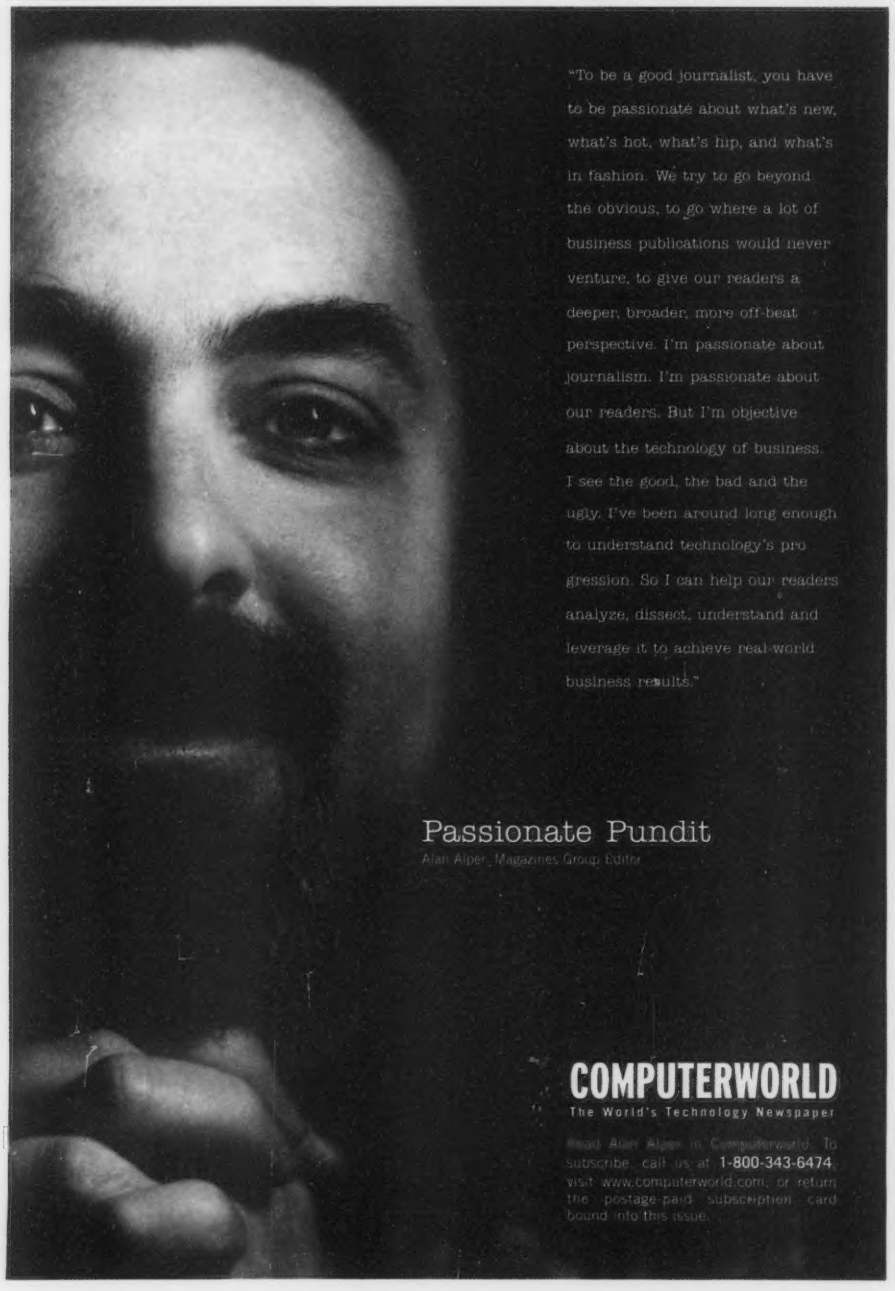
CONTINUED FROM PAGE 45

ahead of IBM's S/390 and Hitachi Data Systems Corp.'s Skyline systems in terms of raw processing power and capacity. The new systems may even put pressure on IBM and Hitachi to respond with similarly powerful systems, said Mike Kahn, an analyst at The Clipper Group, Inc. in Wellesley, Mass.

"[The announcement] is significant in that Amdahl is turning the crank one more time and coming out with a large competitive product," Kahn said.

But with typical mainframe shops aggregating around 400 MIPS in mainframe processing power these days, most users are still a long way from needing Amdahl's 1,000 MIPS, said John Young, another Clipper analyst.

"Clearly there are some users who are pushing workloads to the upper limits on today's systems," Young said. But for a vast majority, current systems fit the bill, he said. □



Dell uses Intel's Xeon chip in corporate quest

CONTINUED FROM PAGE 45

He said the systems offer significant performance gains.

The Xeon-based systems also may help Dell and others move into the Unix space, according to analysts and users.

"A lot of people are moving into the NT space," Gardner said.

As Windows NT applications mature, "we really have a compelling interest in consolidating our environment. It makes a big difference to us because, for example, in our messaging environment, we have multiple systems and protocols. [With a move to NT,] we can simplify that," he said.

Dell already holds the No. 2 slots in the U.S. PC and server markets, Kay said.

"What Dell is trying to do here is make their enterprise customers feel comfortable that they can support the needs of higher-end systems," he said.

"Whenever we have a problem, [Dell] can consistently come back with two or three options in solving them."
– Steve Gardner, NASD, Inc.

But will such users be tempted? "They are saying they can deliver stuff against Unix, but the whole point is that when you look at the real Unix workhorses, the guys running them are loath to move away," Kay said.

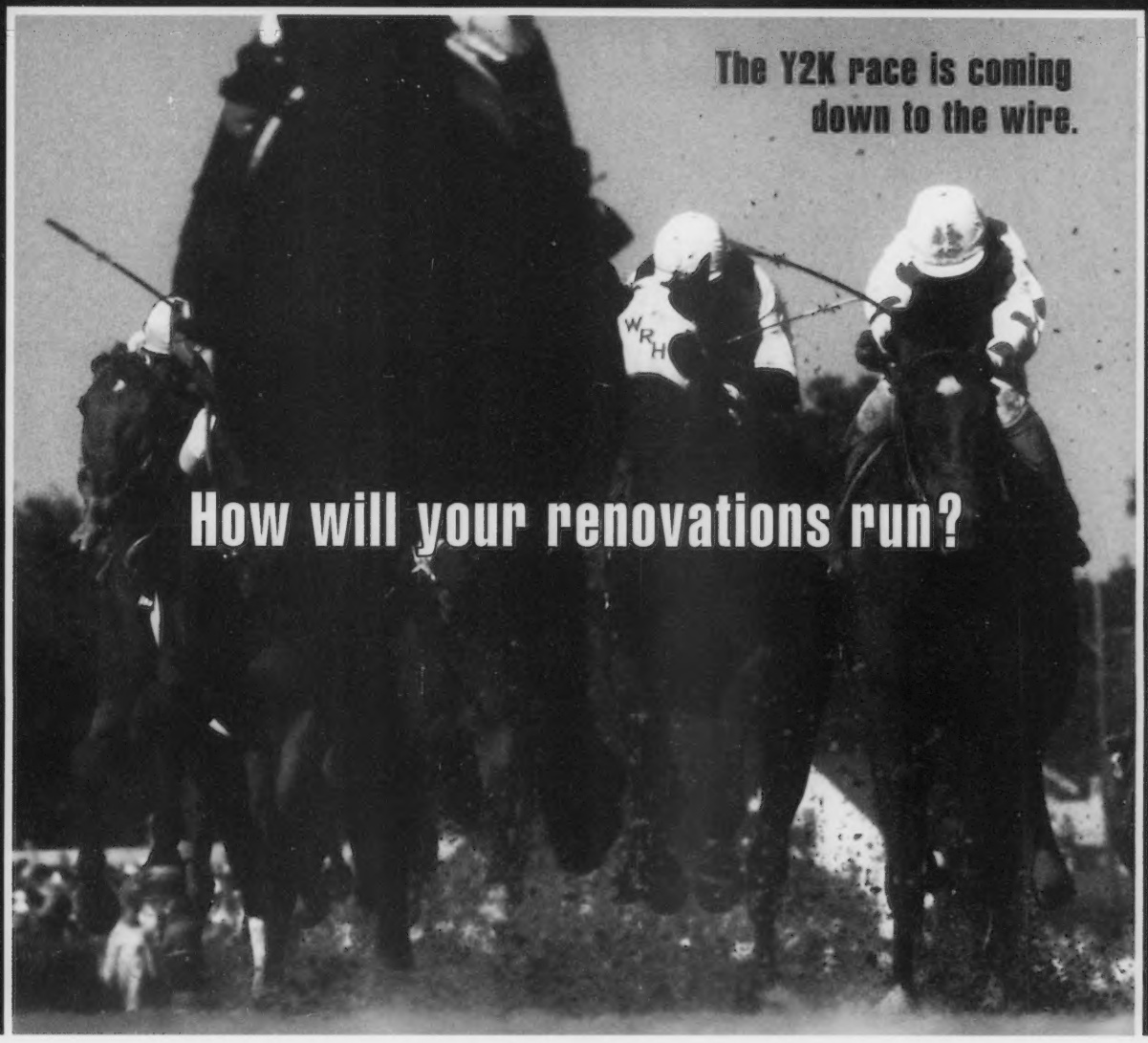
Xeon-based systems scale beyond the two processors their Pentium II counterparts can accommodate and run at 400 MHz — twice as fast as the Pentium Pro, which is expected to fade away as Xeon becomes widely adopted, analysts said [CW, June 29].

IBM, Hewlett-Packard Co. and Compaq Computer Corp. (which recently acquired Digital Equipment Corp. and plans to leverage its huge service organization) already offer similar services.

Dell, however, is using partnerships, not just internal resources, to beef up its organization. It signed agreements with San Jose, Calif.-based Unisys Corp. and Billerica, Mass.-based Wang Laboratories, Inc. several weeks ago for support and services.

Dell also announced its PowerVault 650F storage management system. Based on Data General Corp.'s Clariion Fibre Channel RAID technology, the 650F targets NT-based servers.

The workstations, dubbed the Precision Workstation 610, and servers are priced from about $4,000 to $20,000. □



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Managing

When ALL ELSE

If your systems bomb on Jan. 1, 2000, a contingency plan can save your company. Here's a 10-point plan for building one

IF YOU HAVE a contingency plan, then you must be planning to fail.

Poppycock, says Robert Vaccaro, year 2000 project director at the U.S. Social Security Administration in Washington. "That's this macho-ism that a lot of corporations have, and nothing could be further from the truth. A contingency plan is a smart thing to do."

Vaccaro's group is known for its smarts. The shining exception to the federal government's generally dismal performance on year 2000, it recently scored an A-plus for its efforts from the House Government Reform and Oversight Subcommittee on Technology.

As the millennium looms and uncertainty grows, more companies are beginning to see things Vaccaro's way. They're addressing contingency planning for year 2000 as the final step in preparedness and the final proof of due diligence.

MANAGING YEAR 2000

A contingency plan lays out exactly what your company will do if, despite your best efforts, systems, processes, services or external partners crucial to your business cease to function properly because of year 2000. Contingencies are alternative ways — including low-tech and no-tech — to get the most essential jobs done. For example, a bank looking at a possible year 2000 failure in its account information systems might plan for a backup system, but also might retain critical customer information and account balances on paper in case the power fails.

Once the business contingency plan is in place, there should also be a technical contingency plan that prioritizes fixes to systems in order of importance to the business. That way, if technical systems fail, IS people will work on them in order of importance rather than on a first-come, first-served basis.

LAY THE GROUNDWORK

To begin contingency planning, you need to develop line-of-business working groups that include the lead year 2000 people in each line, members of the year 2000 project office and the people doing the technical work on remediation. "Get the best and brightest together and organize it by line of business," says David Iacino, senior project manager for the Millennium Project at BankBoston Corp.

The businesspeople contribute the knowledge of what has to happen in their departments for the business to function. The technical people can relate business functions to the systems that support them, and they know which systems are most vulnerable to failure. The year 2000 people deliver what Iacino calls the "Y2K head-set": What if this server is down? What if the network is down? What if there are no phones? No mail? No electricity?

Run meetings for each business unit and brainstorm, says Janet Myers, year 2000 program director at Anthem, Inc., a health insurer in Indianapolis. "We all went into a room and walked through the steps and talked about it and thought it through," she recalls.

Once the business units understand what the year 2000 scenario really means, make them responsible for developing their own plans, but control the process from the central year 2000 office. Here's how to do that:

BUILD ON WHAT YOU'VE GOT

If your company already has a disaster recovery plan in place, have every business unit start the planning process with that. "You're not starting with a blank sheet of paper," says Eldridge White, manager of systems and programming at JC Penney Information Systems in Plano, Texas. "The exercise is to modify it; put a year 2000 hat on it."

But don't underestimate the differences. For example, a bank's disaster recovery plan presumes that data will be available from the Federal Reserve and that services will be available from automated teller machine switch networks. "What do we do if we don't have these services?" Iacino asks.

DEVELOP A TEMPLATE

Distribute a common contingency template to help lines of business focus. "Keep it simple," Vaccaro says.

The template should help business units identify a handful of core business processes, prioritize risks and plan how to get on with the core business under escalating "what if" scenarios.

For example, Myers began helping the business units identify key business functions and events. Because Anthem is a health insurance provider, the claims process is a key business function, and an event under that is claims adjudication, she explains.

Then the teams identified the systems that supported each key function, considered the impact of potential system failures and estimated the probability of failures. "We prioritized based on probability of failure and impact on the company," Myers says.

Prioritizing risks keeps the teams focused. "You have to decide whether certain contingencies are not worth looking at," Iacino says. "Otherwise you could spend a gazillion dollars to plan for hiring helicopters to get people to work."

PREDICT FAILURE DATES

The world won't end on Jan. 1, 2000. Many year 2000 failures will happen earlier and many, later. Determine when each key failure could happen. An insurance company that bills six months ahead, for example, should be prepared for billing failures to start showing up next June 1.

CONSIDER DURATION

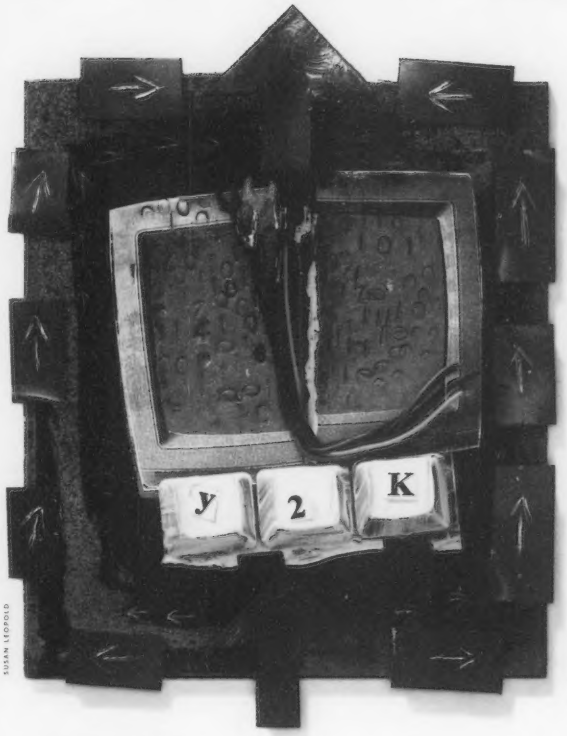
If a system is going down, you have to address length of downtime, says Ed Yourdon, a *Computerworld* columnist and director of the Year 2000 Advisory Service at Cutter Consortium in Arlington, Mass. "An hour, and you lose some money, but what if it's down for a couple days? Is there a manual fallback? Do we just shut down? Is there some workaround? What if it's unavailable for a month?" Yourdon asks.

EXPECT PEOPLE PROBLEMS

Given the current information technology recruiting environment, don't just plan for key systems to fail; plan for key people to disappear, says Debra Speight, chief information officer at Harvard Pilgrim Health Care, a health maintenance organization based in Brookline, Mass. Make sure no contingency plan depends on a particular person or even a particular position. Just as you have backup systems, have backup people who know the drill.

FAILS

By Kathleen Melymuka



SUSAN LEOPOLD

BE READY TO SWAT

There are as many approaches to the "SWAT" team concept as there are businesses, but most companies have some sort of team on call to help deal with year 2000 problems and priorities and put out year 2000 fires on the spot. The SWAT team may include people from the year 2000 program office, business and/or IT. Some companies have a designated SWAT team in each business unit; others have roving teams that can draft staff people from departments and business units to help as needed.

TEST CONTINGENCY PLANS

"If you can't test it, you don't have a plan," Vaccaro says.

For low-risk or low-impact areas, a "desktop" test might be enough. That's a management exercise of running through the list of resources you need to put the contingency plan into effect. If you have the resources available and the people trained, you pass.

In high-impact, high-risk areas, you probably want to walk people through a hands-on test.

DOCUMENT, TRIGGER PLANS

There should be well-documented plans for each line of business and a master plan in the year 2000 program office. At BankBoston, each line of business has an officer responsible for enacting the plan given certain triggers — when cash supply runs low, for example.

DON'T FORGET PARTNERS

"The outside world is our greatest risk," Iacino says. "If Cirrus [an automated teller machine network] has a major outage, what will our branch do?

"And think 'big picture,' " he says. If there might be a run on the banks for cash, for example, contingency planning might include working with the Federal Reserve to stockpile cash in advance. "It's a supply-chain thing," he says.

LEVERAGE WHAT YOU LEARN

Use what you learn from contingency planning to strengthen your overall year 2000 plan.

"The costs to implement contingency plans are huge," says Jim Jones, director of the Year 2000 Group at The Information Management Forum in Atlanta. "So when people get pushed back on requests for $3 million for testing, they can go back in with the contingency plans and say, 'If you think testing is expensive, implementing this for a week will cost $10 million.' It makes the $3 million look like a bargain." □

Melymuka is Computerworld*'s senior editor, management.*

A sample contingency plan

FUNCTION:
- Commercial monetary funds transfer

RELATED SYSTEMS:
- Worldwide funds processing
- International monetary unit conversion
- Funds transfer reporting

BUSINESS PLAN:
1. Process top 20% of revenue accounts manually
2. Hold fund-processing requests for bottom 80% of accounts
3. Shift processing to a prearranged business partner
4. Communicate issue to customers to head off problems

TECHNICAL PLAN:
1. Fix errors in core worldwide funds processing system first
2. Perform monetary unit conversion manually
3. Correct errors in international monetary unit conversion next
4. Correct reporting systems last
5. Deliver data to business partner for off-site processing

In this plan, the business is responsible for processing top accounts manually, holding the rest for transfer to a prearranged partner for processing and keeping customers apprised of changes in service. Meanwhile, IS will work on failed systems in order of priority, handle monetary unit conversions in the manual accounts and deliver the other account data to the partner for processing.

Source: William Ulrich, president, Tactical Strategy Group, Inc., Soquel, Calif.

543 days until 2000

YEAR 2000 SCOREBOARD

An occasional series on year 2000 trends, issues and statistics

Power outage?

What's the possibility that you or your business may wake up on the morning of Jan. 1, 2000, without juice — the electrical kind?

That's a major concern among businesses and a new U.S. Senate panel that's monitoring the year 2000 problem.

The entire economy depends on the electric power industry, but the industry's year 2000 record today is "spotty," says Rick Cowles, a former information systems professional in that industry and author of the recently released *Electric Utilities and Y2K*. "There's some very good work going on . . . at some companies, and there's none going on at others," Cowles says.

Cowles sees progress among the roughly 200 investor-owned organizations that provide about 75% of the nation's electric power. "They're making progress and are heading off in the right direction," he says.

The bad news lies in the hundreds of smaller companies that provide the remaining 25% of the nation's electric power, such as rural electric cooperatives and municipal utilities. Those organizations, Cowles says, are "behind the curve." They are constrained by finances and a lack of personnel to examine their year 2000 problems, he says.

Yet, it's those smaller companies that will pose bigger problems come Jan. 1, 2000, he says. Because they buy their power off a power distribution grid, a year 2000 problem in any one of their systems could filter back through the supply chain and cause a regional interruption in power flow, Cowles says.

He advocates the sharing of information among utility companies and believes Washington should help facilitate that.

In Washington, the Senate's special committee on the year 2000 released the results of a recent survey of the nation's 10 largest utility corporations (oil, gas and electricity) and concluded that their efforts are "too slow," prompting "significant cause for concern." — Rick Saia

A line on alignment

Looking for ways to raise information technology's profile with executives? The year 2000 may do the trick for you.

The year 2000 "is the greatest thing that's happened to us," William B. Gauld recently told a group of about 50 workshop attendees. The gathering was sponsored by the Center for Information Management Studies at Babson College in Wellesley, Mass. Gauld, vice president and chief information officer at Textron, Inc. in Providence, R.I., delivered a presentation on how IT can play a more strategic role in a corporation. The year 2000, he says, gives IT that "avenue" to talk directly with senior management.

A bite out of data warehousing?

The year 2000 is forcing more organizations to divert resources from data warehousing projects, according to the IT research firm Meta Group, Inc. in Stamford, Conn.

Meta Group's survey of 220 attendees at an April Data Warehouse World conference in San Francisco found that 51% said the year 2000 was affecting their data warehousing projects. That's up from 34% last year.

Robert Craig, a vice president and data warehousing analyst at The Hurwitz Group, Inc., a consultancy in Newton, Mass., said the numbers probably are correct, but that the dollar diversion is a "temporary bubble." He says corporations won't put data warehousing projects on the back burner over the next 18 months; they'll just work on them "in a slightly diminished manner."

OTHER META GROUP FINDINGS

24% said they're seeing a diversion of data warehousing staff to year 2000 work, up from 14% last year.

15% said they are losing money from their capital budgets for data warehousing hardware and software, up from 7% last year.

Resources: There's no shortage of books and reports on the year 2000 problem. Here are three worth noting:

Year 2000: Best Practices for Y2K Millennium Computing

This is a how-to book for information systems managers and CEOs. It's edited by Dick Lefkon, who has served as manager and technical expert for leading corporations and has performed year 2000 system integrations since 1984.

The book, published by Prentice Hall PTR (*www.phptr.com*) in Upper Saddle River, N.J., contains management and legal advice, case reports from leading organizations and forms to help you organize and evaluate your year 2000 project. (*666 pages; $39.95, paperback*)

Year 2000 Update: Key Issues and Research Reports

The third report from The Society for Information Management's (SIM) Year 2000 Working Group focuses on what SIM calls the five key elements of year 2000 success:

- Magnitude of companywide year 2000 problems.
- Management issues that directly affect people.
- How the acquisition and utilization of resources impact costs and progress.
- Insight into the perceptions and opinions of vendors and service providers.
- Lessons in contingency and continuity planning.

Copies are available for $75 for SIM members, $220 for nonmembers. Call SIM in Chicago at (312) 644-6610.

You can read more about the report on the Web at *www.year2000.unt.edu/#paper2*.

Evaluating Success of a Y2000 Project

This book is a quick read. It was written by IT researcher Howard Rubin and Brian Robbins, year 2000 project leader at The Chase Manhattan Bank Corp. It emphasizes the evaluation of year 2000 projects from a business standpoint as a basis for risk management and business contingency planning. Published by The Information Economics Press in New Canaan, Conn., it includes a quick 10-question test to help readers assess their organizations' projects.

Here are a few of the questions:

- Has the business impact of your year 2000 problem been assessed in terms of functions, systems, liability, business partners and customers?
- Does the project have appropriate business involvement for testing, communication, business exposure and regulatory compliance?
- Are you planning to test all business operations to ensure they will operate properly for pre- and post-year 2000 processing?

The book can also be used to help evaluate projects for business partners and others in a company's supply chain. For a copy, write to Rubin Systems, Inc.; P.O. Box 387; Pound Ridge, N.Y. 10576; or contact Rubin at (914) 764-0536 or by E-mail at howard_rubin@compuserve.com.

MOREONLINE

For more information on the year 2000, visit the Year 2000 Resources page at *Computerworld online*.
www.computerworld.com/res/year_2000.html

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QUACK SOFTWARE WARRANTIES HAVE GOT TO GO

PAUL A. STRASSMANN

The vendors of off-the-shelf software are getting away with product warranties whose language renders them worthless. They are forcing us to accept fault-free cover-ups of persistently defective software.

You would never buy an automobile or a refrigerator that offers as little protection and as great dependency as the software on which our information society is built. If we made trucks, pharmaceuticals and radios the way we engineer software, our economy would still be stuck in the early era of industrial development.

CUSTOMER EXPECTATIONS

In just about every other industry, consumers have many ways to get faulty products replaced. Many companies offer meaningful guarantees and warranties. Consumers may successfully sue manufacturers for damages from defective products, especially if the manufacturer was negligent.

Manufacturers have been forced to disclose information about the quality and dangers of their products. The old buyer-beware attitude is out. Consumers now demand that sellers be accountable for how their products are used.

ACCOUNTABILITY AVOIDANCE

Unfortunately, off-the-shelf-software companies still think they don't have to be responsible for product quality.

Consider a typical software installation process. First, you get a window with 14 lines of tiny type asking, "Do you accept all of the terms?" If you choose "No," the setup will close. So everyone clicks "Yes" and prays nothing will crash the system.

What did you just agree to? To find out, you have to scroll through at least 10 hard-to-read windows because you can't enlarge or print the text. Typically, you will find you have given consent to absolve the vendor from any responsibility whatsoever. The vendor has agreed only that ". . . software will substantially conform to the applicable documentation . . ." (ha!) and that it ". . . makes no warranty or representation, either express or implied, with respect to the software, documentation, quality, performance, usability, condition, compatibility, security, accuracy, merchantability, or fitness for a particular purpose." I particularly relish the clause that states ". . . customer waives any claims even if the vendor has been advised of the possibility of damages . . ."

What does that mean? For instance, by clicking Yes, you will have absolved the vendor of responsibility for known defects in security that would lead to a compromise of your confidential data. By clicking Yes, you will have agreed not to blame the vendor for a rare combination of commands that will wipe clear your entire disk.

Even the few, ephemeral commitments contained in these warranties are worthless. Consider this pledge: "What you accepted is that the software vendor will only have to cover either the purchase price paid or the costs of repairs [bug fixes] to the software package, but only if such fixes are available." But even that is void in case of your "misapplication," as judged in the sole discretion of the courts in the vendor's hometown.

In dollar terms, such remedies are meaningless. For instance, I have just completed a review of the time lost by a large financial firm from failures caused by off-the-shelf software. It added up to approximately 6.5 hours per month per person, or a total of $135 million per year. That's a very large multiple of the purchase price for the firm's software for one year.

The manufacturers of electrical devices — motors, spark plugs and circuit boards — provide generous warranties because their products are manufactured to defined specifications and quality standards. The software industry doesn't offer such warranties because its products are rushed to market after insufficient testing, in disregard of the pain the products may inflict on the buyers.

It's time the software industry joined the universal quest for greater product reliability and ended to shoddy software.

We users can't accept any more quack claims about capabilities and features for which the vendor assumes no responsibility. We must have performance warranties, test certification and assured performance levels to keep costs down and productivity up. We can't let a vendor ship operating systems with gaping holes that let infocriminals gain control of a business. We can't suffer applications that destroy data and wipe out ongoing work. We must not tolerate software so faulty that even the vendor's own experts can't install a peripheral device without crashing the system in a public demonstration.

My advice to buyers of off-the-shelf software is to rebel against contractual language that will place their careers at risk. Soon, negligence lawyers with experience gained from year 2000 lawsuits will turn their sights on organizations that have put up with software that's causing damage.

Please read the fine print. The verbiage you strike out may be the words that could hang you. □

Strassmann (ceo@stacorp.com) expects that if the software industry doesn't deliver quality products, lawyers and regulators will ensure that it does, in a most unpleasant manner.

f.y.i.

Keep that project simple

The smaller your IT project, the more likely it will succeed. That's what The Standish Group International, Inc. in Dennis, Mass., has learned from following 23,000 projects since 1994.

Standish's study found that information technology project success in Fortune 500 companies rose from 9% in 1994 to 24% this year, while the average cost of projects dropped from $2.3 million to $1.2 million, indicating significant decrease in scope.

"The reduction in scope has a direct effect on project success," says Jim Johnson, Standish's president, who defined success as delivery on time and within budget.

The best way to design projects is in small, spare, iterative chunks, he says, leaving out as many features and functions as you can. Features can be added in later iterations, "but chances are if you can delay a function, you won't build it later" because you'll find it unnecessary, Johnson says.

The continuing study found that project success is inversely proportional to size. Among projects studied, those costing less than $750,000 succeeded 55% of the time, while those in the $1 million to $2 million range had an 18% success rate, and those in the $5 million to $10 million range had only a 7% chance of success.

Projects most likely to succeed, Johnson says, take less than six months, involve fewer than six people and cost less than $750,000.

Other factors that drive success included the following: user involvement, executive support, experienced project management, clear business objectives and good communication.

— Kathleen Melymuka

Review Center

Preparing for 64-bit

BEHIND *the* MERCED MYSTIQUE

BY KIM S. NASH

PLUCK A HAIR FROM YOUR HEAD. Imagine slicing it lengthwise into 555 strands. Each would be 0.18 microns thick, the same thickness as a wire destined for Intel Corp.'s new Merced chip.

In fact, they aren't even called wires — traces is the term, and you need an electron beam to arrange them in the specific, and so far secret, layout that will become a Merced microprocessor.

Merced is the code name for the first chip to be built from a new 64-bit microprocessor design, dubbed IA-64, created by Intel and Hewlett-Packard Co.

Although Intel expects big things from this incredibly small technology — including fat profits — Merced-based servers won't be for everyone or every application.

Merced and 64-bit computing are "a natural extension of our product line," says Ron Curry, director of microprocessor marketing at Intel. Yet, he adds, "We have no delusion this [migration] will happen instantly."

Historically, wide-scale movement to new architectures has taken at least three or four years. Save for some early adopters, most corporate users aren't expected to buy in to Merced and its IA-64 architecture until 2003.

Merced, page 56

MERCED

CONTINUED FROM PAGE 55

Close-mouthed about their plans for a next-generation processor since they announced a partnership in 1994, Intel and HP only late last year described their work.

And they still won't talk about key details, such as speed and performance.

What we do know is this: The IA-64 chips will incorporate a joint Intel/HP design called EPIC, or Explicitly Parallel Instruction Computing. First there was CISC, then RISC, now EPIC, the vendors are fond of saying.

EPIC chips perform tasks in parallel, instead of sequentially, which will make them at least twice as fast as today's CISC and RISC chips, analysts say. The minute distance between traces will also speed processing. (By contrast, HP's PA-RISC traces are 0.5 microns.)

Conceptually, EPIC chips, of which Merced will be the first, will be split into three parts. One section goes to CISC processing, another to RISC, and a third to EPIC.

In theory, putting all three architectures on one chip means existing applications will still run on servers based on the new chip. But unless software is tweaked to take advantage of parallelism, users won't see any faster or better processing.

A cooling unit, cache and other subcomponents will be packaged with the Merced chip in a plastic cartridge about the size of a paperback book, says Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

The box will have a connector hanging off it for hardware makers to plug in to motherboards. The whole package will be about double the size of a Pentium II package, McCarron says. HP and Intel both worked on the architecture, but Intel will be the sole maker of chips based on it.

DELAYED START

But Merced chips won't ship in volume to hardware makers until mid-2000 — six months later than planned. For information systems managers, many of whom haven't thought much about how to fit Merced into their technology plans, the delay means little. Semiconductor analysts shrug it off as a blip in what will be a 15-year product cycle.

After hardware vendors get the chips, IS shops must wait another three to six months for servers based on Merced. Merced recently entered a final phase of design: logic and timing convergence. There, the chip is laid out, and engineers test to ensure that it's structured so that the thousands of functions each piece performs are coordinated.

Intel is certainly late to 64-bit computing. Digital Equipment Corp., for example, first shipped its 64-bit Alpha systems in 1993. The Alpha processor has been popular but, with 5.9% of the servers and workstation market, it hasn't overwhelmed the market at large.

But what has chip experts jazzed about Merced is the promise of high-volume manufacturing, which Intel has perfected in the 32-bit realm, a.k.a. today's Pentium processors.

The lessons Intel learned with Pentium will help it make large quantities of 64-bit processors very efficiently. That will push down the cost of the high-performance chips and, in turn, the big-daddy servers that use them, analysts predict.

And, the logic goes, users who once shunned 64-bit servers because of high prices will now buy them. Plus, Intel's timing is good. More users now have giant applications that can benefit from 64-bit, parallel processing, such as huge data warehouses and high-traffic Internet sites.

USER ISSUES

At user companies, IS managers can start tagging applications likely to benefit from cheap parallel processing. For example, big database systems — data warehouses, for example — are good candidates.

That's because the Merced chip will be able to keep more of the data — 64 bits of it — in memory than a 32-bit system can. That, combined with parallel processing, translates into a faster application.

Another consideration: Merced servers, with their trifold CISC/RISC/EPIC chip design, will be able to run both NT and Unix on the same machine.

But back on earth, one IS manager notes that Merced isn't yet available so it's tough to do any real work.

"Merced? We're interested, sure. But they have to come out with it first," says Paul Gross, vice president of IS at Atlantic Container Line in South Plainfield, N.J. "We can't deal with vaporchips."

Eventually, Intel will filter 64-bit processors down to desktop computers, but not for at least four or five years after Merced comes out, Intel Chairman Andy Grove has said.

For Intel, Merced and its follow-ons mark the vendor's entry into very high-end corporate computing, where profit margins are fatter.

"No one knows for sure, but Merced will probably go for $2,000 to $6,000 per processor," McCarron predicts.

Compared with the $161 to $824 Intel gets for each Pentium, that's nice money. "They want to moderate the fact that we've seen a shift toward cheaper processors and $1,000 PCs," he says.

Curry declined to comment on prices. As with today's 64-bit systems, complete Merced-based servers are likely to start at $10,000 and reach beyond several hundred thousand dollars, McCarron says. But unlike existing hardware, most Merced servers will remain priced in the low end, he says.

That range "is accurate," says Jim Carlson, marketing manager for HP's IA-64 systems.

Almost all operating system vendors and many major software companies have pledged to support Merced.

HP, of course, is working on a Merced version of HP-UX.

HP INFLUENCE

Although HP won't get first dibs on Merced chips, it influenced the architecture so that the transition from PA-RISC systems to EPIC systems will be "more transparent" for HP users than for users of other hardware, Curry acknowledges.

Elsewhere, Sun Microsystems, Inc. in Mountain View, Calif., says it will port Solaris. Digital, now a unit of Houston-based Compaq Computer Corp., will work with Sequent Computer Systems, Inc. in Beaverton, Ore., to devise a Unix port of its own.

Microsoft Corp. in Redmond, Wash., has promised that a 64-bit version of Windows NT will be ready when the first Merced-based servers ship.

So far, only the HP/SCO product and Windows NT are already running on a Merced simulator at Intel, Curry says. But what will make or break Merced is the support of key applications vendors. PeopleSoft, Inc. in Pleasanton, Calif., and SAP AG say they will have Merced versions of their client/server financial applications ready when the servers ship.

Oracle Corp. in Redwood City, Calif., and Sybase, Inc. in Emeryville, Calif., plan to port their databases.

Open Market, Inc. in Burlington, Mass., announced last month that Intel invested $5.7 million in the company; Open Market agreed to build a version of its Transact electronic commerce software for Merced. □

The birth of Merced

1993

Digital ships servers based on its 64-bit Alpha chip.

1994

HP and Intel announce they will jointly build a new, high-powered processor. The move is, in part, a response to the then-formidable IBM/Motorola/Apple PowerPC pact.

September 1996

Microsoft promises to have a 64-bit version of Windows NT ready when Merced server hardware ships.

June 1997

Intel gets U.S. patent for parts of Merced's EPIC technology.

October 1997

▸HP and Intel talk publicly for the first time since the joint project was announced about how the IA-64 architecture behind Merced will work; they say Merced and follow-on 64-bit chips will be aimed at servers, not desktops, for at least five years after they ship.

▸IBM announces the Power3 family of 64-bit servers, to ship sometime in 1998.

▸Sun unveils its UltraSPARC III, a 64-bit processor it plans to ship around 2000.

December 1997

Sun says it will create a version of Solaris for Merced servers.

STEPS *you* CAN TAKE TODAY

BY KEVIN BURDEN

THE VENDORS INVOLVED in Merced say moving to the IA-64 processor will be a cakewalk. If you believe that, you haven't followed this industry too closely.

Vendors make that claim because the IA-64 architecture was designed so users can move to it without having to change their applications right away. Well, the coexistence of 32- and 64-bit applications will certainly make the migration manageable. But as experienced IT professionals, you can't believe it will be that easy, "simply because we've never seen a painless migration before in this industry without some gotchas," says Brian Richardson, program director at Meta Group, Inc. in Boston.

Here's a look at some of the issues IT managers will wrestle with as Merced emerges:

WHAT DO YOU PREPARE FOR?

Merced may start the wave to a mass-produced 64-bit architecture, but analysts warn against preparing for a specific processor.

Instead, shift your focus away from Merced and toward the days when commodity processors are 64-bit and deliver upward of 20 times today's performance levels. And be ready for that to happen in two to three years, says Jonathan Eunice, an analyst at Illuminata in Nashua, N.H. "You don't want to base decisions about your database or middleware applications on a specific processor that hasn't arrived yet," he says.

Users can absolutely count on Intel processors having enough juice to run data warehouses and large online transaction processing applications in a few years, but don't bet on a specific parts number or chip to get you there, Eunice says. "You don't want to fall into the trap of predicting what this industry is going to churn out," he says. Instead, concentrate on when vendors will issue native 64-bit software to take advantage of the IA-64 architecture.

WHO'S ON BOARD?

Because Merced-based systems will offer little without an optimized 64-bit operating system, users should watch what the software vendors do, says Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz. "From a performance standpoint, Merced delivers nothing we don't already have without native 64-bit code," McCarron says.

And if your plans call for your next server upgrade during the initial Merced time frame, Windows NT won't be an option. There is every sign a 64-bit version won't be ready on time, analysts say. Even if it is ready, it won't have the robustness of Unix for years, according to Richardson. "NT is more like a three- to five-year scenario as an enterprise platform, not [two to three years]."

NT's possible late showing has spawned a rebirth of sorts for Unix vendors, and several have said they will be there right from the beginning. Richardson says there will be only three Unix versions not in sig-

Steps, page 60

The future of Merced

January 1998

Intel acquires an NCR engineering group to build eight-way Merced systems.

March 1998

Microsoft ships pre-beta development kits for building 64-bit applications.

April 1998

The FTC approves a deal where Digital will sell its 64-bit Alpha chip operations to Intel for $700 million, but Intel must offer the technology to rival chip makers. The 64-bit Alpha is one of the few would-be competitors to Merced.

May 1998

Sun ships development kits for building 64-bit applications for its UltraSPARC chips.

May 1998

Intel delays the date Merced will ship to OEMs for six months into mid-2000.

1999

- HP to ship servers running the PC-RISC 8700 chip, an upgrade to HP's existing 64-bit chip, the 8200.
- Intel rivals Cyrix Corp. and Advanced Micro Devices, Inc. plan to ship 64-bit chips of their own: M3 and K7, respectively.

Early 1999

Microsoft to ship Windows NT 5.0; user companies will spend most of 1999 installing the upgrade.

1999 - 2000

User companies struggle with year 2000 problems.

Mid-2000

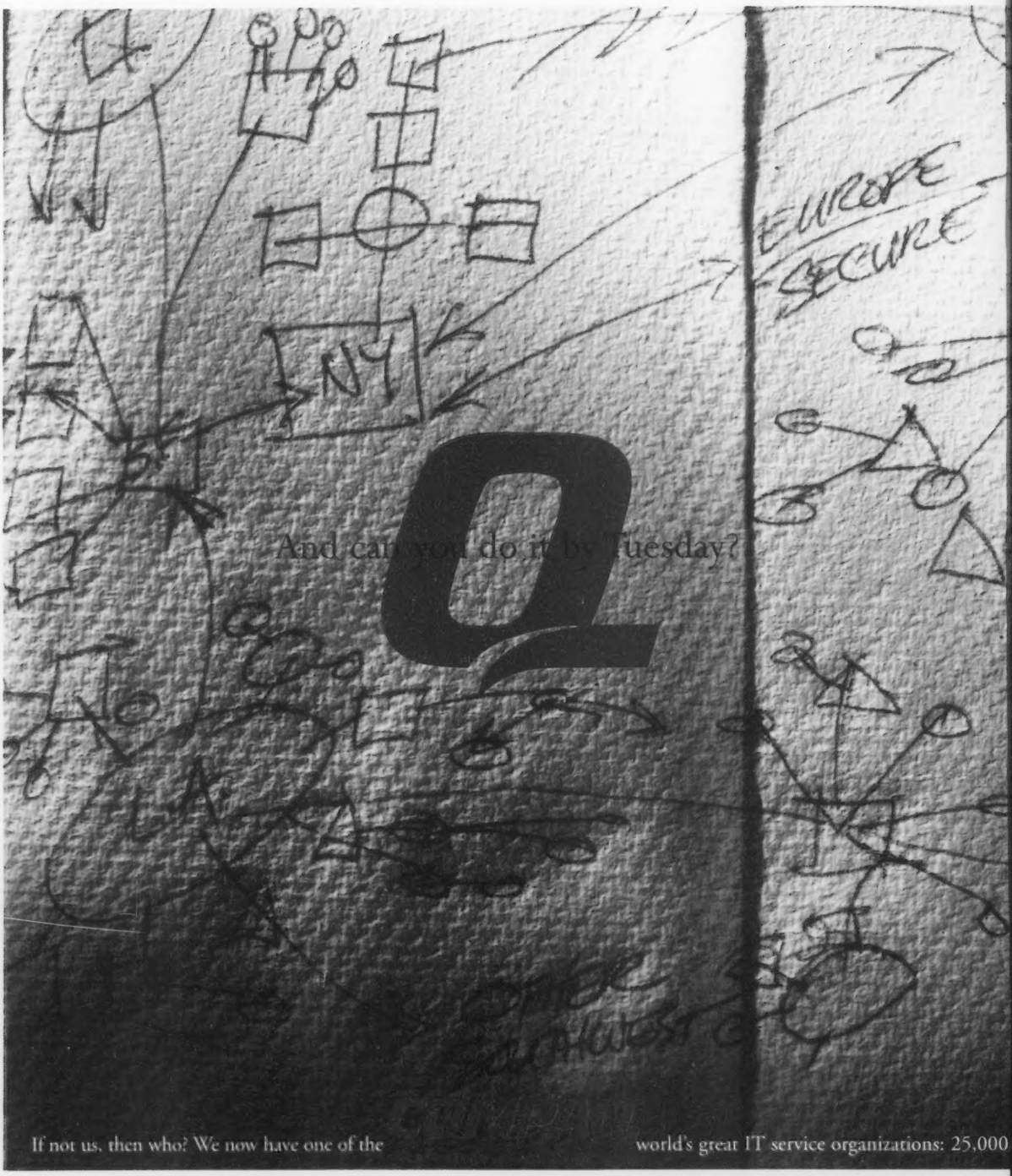
Merced chips to go to hardware makers.

Late 2000

Servers based on Merced to start shipping.

2004

The earliest Merced may be built in to PCs, according to a prediction by Intel Chairman Andy Grove.



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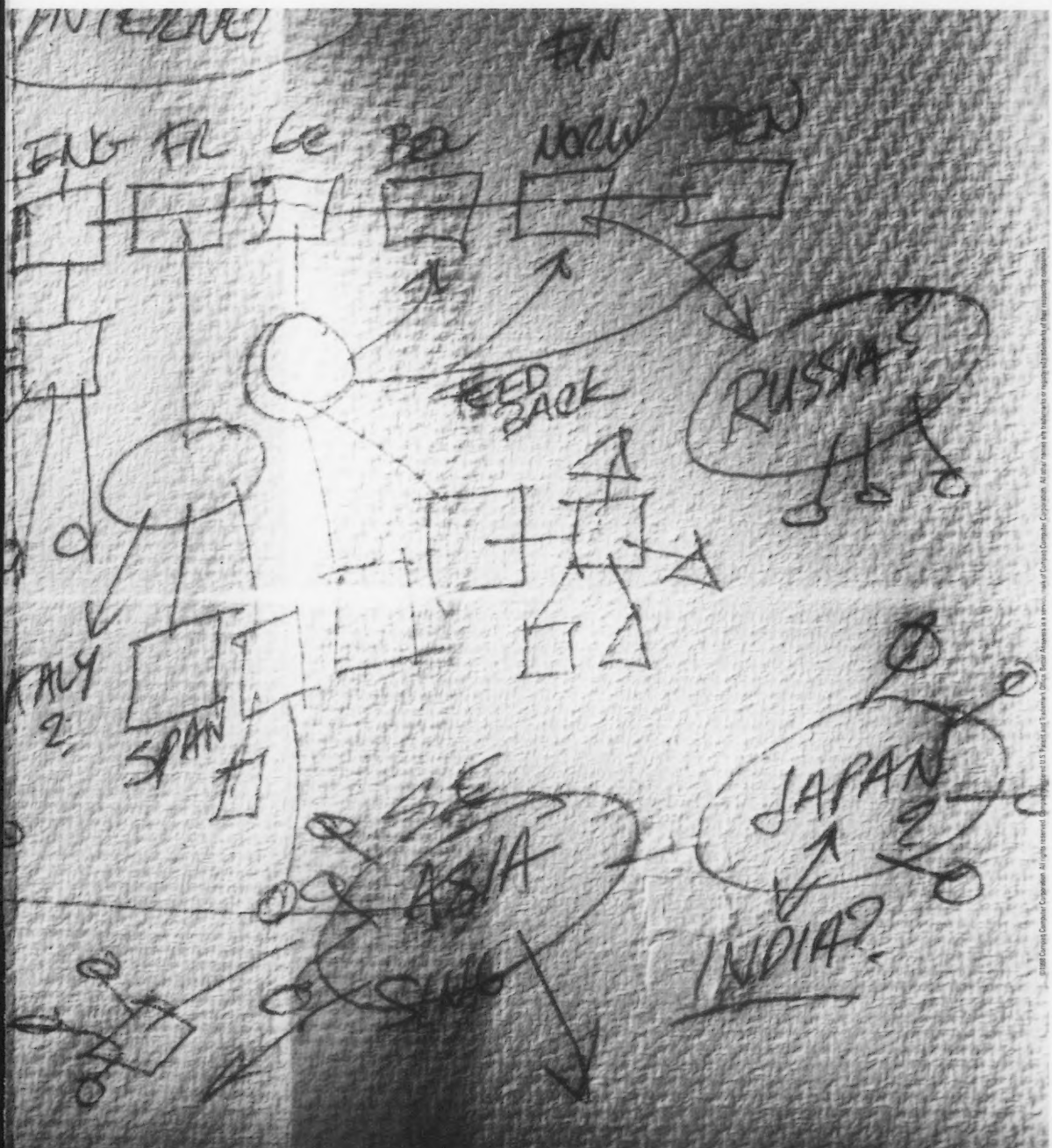

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STEPS YOU CAN TAKE

CONTINUED FROM PAGE 57

nificant decline around 2001 and 2002 — Hewlett-Packard Co.'s HP-UX, Sun Microsystems, Inc.'s Solaris and IBM's AIX. Of the three, IBM is the only one that hasn't pledged to port to Merced. Sources close to IBM say it will stick with its PowerPC architecture while watching how well Merced is accepted in the market.

HP-UX 11.0, which shipped in November, is HP's first full 64-bit operating system, even though it runs on 32-bit HP PA-RISC platforms today. "It's a jumping-off point for users and developers. All applications developed to [11.0] will also run on Merced," says Jim Carlson, HP's director of marketing. HP says its co-development work with Intel on Merced gives it the inside track. Sun counters that Solaris has an edge over other Unix systems because it's already on the Intel platform. But Solaris users on SPARC who want to jump to IA-64 may not get much migration support from Sun. The company fully expects those users to move to the UltraSPARC III, its next-generation processor scheduled to ship about the same time as Merced.

What happens when and if NT proves a viable 64-bit operating system? If there's enough demand for Merced systems, Microsoft won't wait long before it delivers a full-fledged 64-bit version, says James Gruener, an analyst at Aberdeen Group, Inc. in Boston. Although it will be several years after NT is ported to IA-64 before it has the same robustness as Unix, "it's bound to attract a broad application base, making it a player no matter how late it is," he says.

HOW TO INSULATE YOUR FUTURE

How do you prepare when you don't know what to prepare for? After all, deciding to move to NT from Unix — an option that some analysts say will be viable once NT gains the stability of Unix — can be an immense transition.

But if IT managers focus on choosing the right database and application software vendors and ensure that those vendors support multiple platforms, end-user companies should be protected no matter which chip architecture or operating system they need in the future. "Oracle, Sybase, Lotus, Netscape — these are the vendors to watch because they will insulate users from any unforeseen processor or operating systems changes," Eunice says. "NT from Unix, Intel from RISC — it doesn't matter. The middleware vendors will support a number of operating systems. They will do all the hard porting work for you." And as long as your other applications focus on the middleware — be they SAP R/3, PeopleSoft, Baan or IBM DB2 Universal Server — rather than the operating system and processor, "changes won't be that big of a deal," he says.

Most of those vendors say they are committed to IA-64 and promise to be ready the day Merced shows up. Oracle Corp., Sybase, Inc. and Informix Software, Inc. already have 64-bit versions running on Alpha and SPARC. For them, it's a matter of porting the code set to IA-64 processors. But which operating systems they will support is still an issue. Oracle says it will support any operating system with a commercial implementation on Merced, including NT. That's the same generic claim most vendors are making.

"It's not too early for users to start meeting with their primary vendors, probably under nondisclosure [agreements], to find out what their real plans are," says Craig Symons, a vice president at Giga Information Group in Boston. Beyond which operating systems the vendors plan to support, Symons says, you should ask about time frames, the migration path from existing applications, expected performance and pricing. "Vendors may be looking at Merced as an opportunity to move to more differentiated, capacity-based pricing on the Intel platform," he says. In other words, the cost of a server license may depend on the machine's MIPS.

Committing to a software layer rather than a processor or operating system can also shield users from another hassle, the endian issue, which involves the byte format that data uses in memory and on disk. The two endian formats are big endian and little endian, and they are incompatible with each other. Most RISC vendors use big endian; Intel has always used little endian.

However, Merced will be the first chip to support both, which only means the endian issue could be a hassle for users who want to change platforms. Sun's Solaris, Digital's Unix and NT will support little endian on Merced; HP-UX on Merced will support big endian. "That means HP-UX users can't even think about moving to NT when it's ready without going through some major conversions," Richardson says.

WHEN DO YOU MOVE?

It will be several years after Merced ships before significant adoption takes off. It isn't prudent to dump the capital invested in existing servers until the new architecture delivers a significant performance boost, Eunice says.

"If the first systems have disappointing benchmarks, as the earliest generations of new chips often do, don't buy them," Eunice says. In the meantime, Intel users who need more power can move to Xeon-based systems, Intel's next generation of the Pentium II line, which was introduced in June.

And RISC users will likely want to wait until at least the second generation of IA-64 because Merced may not give them much of a boost from where they would be with high-end PA-RISC or Alpha-based system, according to Richardson.

Plus, when Merced is available, users will likely be immersed in projects built up during their year 2000 crises or still rolling out NT 5.0. "I doubt we'll see significant movement before 2003," Richardson says.

But because IA-64 will help ring the death knell for several architectures, users should be prepared. That will let them migrate on their own terms, not when vendors cease support. "Mips will be the first to go, HP is already sunsetting PA-RISC, and there are long-term questions about SPARC, PowerPC and how long Intel will continue to manufacture Alpha," Richardson says. □

At a glance

Prepare for when commodity processors are 64-bit, not for Merced specifically.

Meet with primary vendors on their plans to support IA-64. What is their time frame, migration strategy from existing applications, expected performance and pricing?

Commit to a software layer that will insulate you from future processor and operating systems changes.

Understand that a successful IA-64 architecture will mean the end of other architectures such as MIPS and PA-RISC. Learn the future of your architecture.

Glossary

32-bit, 64-bit

▸ Refers to the amount of data a CPU can process at once. A 32-bit system can handle 4 bytes; a 64-bit system can handle 8.

EPIC

▸ Explicitly Parallel Instruction Computing, the Intel/HP name for how their new chips will work. EPIC follows up on the speed and other improvements that RISC had over CISC. EPIC chips perform tasks in parallel, which will make them at least twice as fast as today's CISC and RISC chips, analysts say. (HP and Intel declined to comment.)

IA-64

▸ Intel Architecture, 64-bit, the Intel/HP name for the 64-bit chip family they designed together. Merced will be the first. Intel will build the chips. IA-64 chips will be designed to perform today's x86 functions as well as EPIC functions.

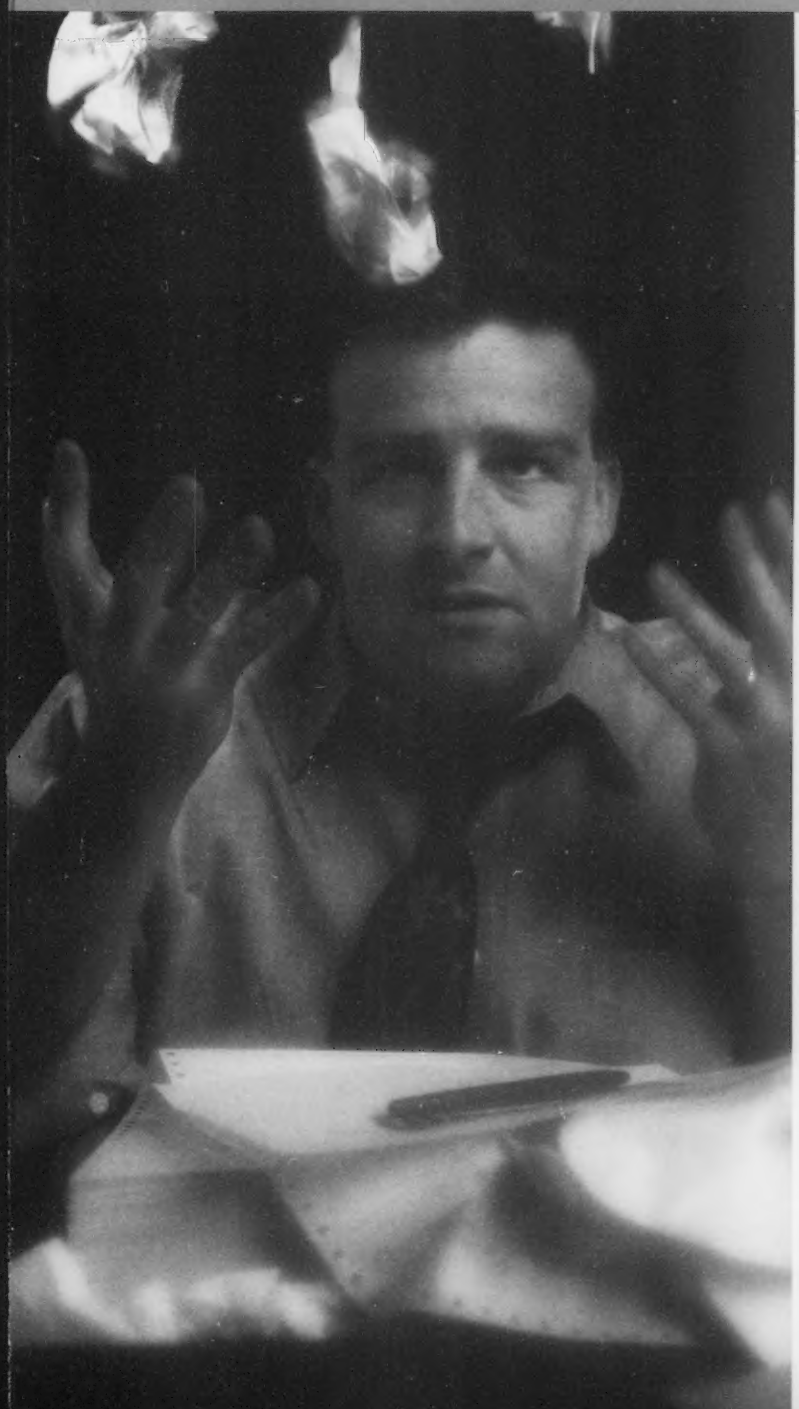
Predication

▸ A decision-making method programmed into IA-64 chips to make them faster than today's chips. Instead of an "if-then-else" sequence, IA-64 will execute all possible outcome branches in a given decision tree at the same time, but it will use only the correct one. That can cut the number of branches by up to 50%, Intel says.

Speculation

▸ IA-64 chips will grab data from memory even before a corresponding decision branch is triggered. That reduces the time a chip sits idle while waiting for data to be retrieved. Today's chips attempt to anticipate which data will be needed, but they do it only after a particular branch is activated. Speculation will be accurate more than half the time, further speeding processing time, Intel says.

THERE'S AN EMERGENCY BOARD MEETING. THE CFO NEEDS NUMBERS BY NOON!



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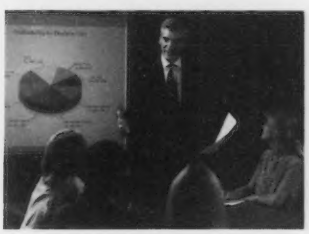

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In Depth

COMPETITIVE INTELLIGENCE

IT is helping companies dig up vital information on their archenemies. The means are **LEGAL**, the data is **ACCESSIBLE**, the returns can be **STUNNING**

BY GARY H. ANTHES

THE COMPETITIVE intelligence group at SmithKline Beecham Corp. found its first "nugget" buried in congressional testimony on forestry legislation: Competing drug maker Bristol-Myers Squibb Co. was planning to increase 200-fold its harvest of the Pacific yew tree, whose bark is used to produce the experimental anticancer drug Taxol.

SmithKline Beecham found the second nugget in a sharp rise in the number of Bristol-Myers recruitment ads for oncologists in cities where the company had experimental cancer clinics.

The third piece of gold came from financial analysts briefed by Bristol-Myers on the company's plans to step up funding for its oncology group.

When the competitive intelligence team at

Ava Youngblood, SCIP president: CI's "real value comes from the synthesis and analysis you do"

MICHAEL ABRAMSON

SmithKline pieced together those and other clues, it became apparent that Bristol-Myers was planning to substantially accelerate its development of Taxol. Sure enough, the company filed its application with the Food and Drug Administration 18 months earlier than outsiders had predicted.

But by then, SmithKline had accelerated the development of its own anticancer drug. "Because of the competitive intelligence, our project team was able to respond much more quickly than ordinarily," says Wayne Rosenkrans, who headed competitive intelligence at SmithKline's research and development group at the time. "It meant we didn't lose 18 months."

And 18 months is forever at companies that make drugs, computers and other high-technology items. Those companies — looking for ways to stay ahead of shrinking development cycles — are on the leading edge of a wave of organizations establishing formal competitive intelligence (CI) programs. Membership in the Society of Competitive Intelligence Professionals (SCIP) jumped from 2,400 in 1994 to 6,500 this year and is growing 30% annually, the Alexandria, Va.-based association says.

More than half of all Fortune 500 companies have CI programs, estimates Leonard Fuld, president of CI consultancy Fuld & Co. in Cambridge, Mass. "Small companies don't need them because they do things intuitively, but in large companies, the knowledge is so dispersed that it cannot be easily brought to bear on a question," he says.

"There's a tendency to say, 'We can't be touched,' " says Max Downham, president of Telescope Ltd. in Chicago. "But there are people out there who want to eat your lunch, and they want to eat all of it, right now."

Downham should know. He set up a CI unit for the NutraSweet subsidiary of Monsanto Co. in 1989, three years before the company's patent on the artificial sweetener aspartame was to expire. The operation, budgeted at only $250,000 per year, returned $50 million a year in increased revenue and avoided expenditures, according to NutraSweet CEO Robert E. Flynn.

CI practitioners say the most important component of a CI program is the human element — analysts reading competitors' newspaper ads, prowling trade shows and working the phones. But information technology is a vital element as well, and some say the CI craft may soon leap forward, propelled by IT tools developed for U.S. and foreign intelligence agencies (see story at right).

THE POWER OF IT

IT is the "multiplier" in CI, says Jan Herring, who left the Central Intelligence Agency to set up a CI unit at Motorola, Inc. in 1983. "At the CIA, I depended on hundreds of librarians," he says. "At Motorola, I could do the same job with two librarians, a PC and a modem. Technology allows companies to do now what only countries could do previously."

CI programs can be built around IT as simple as Internet access and E-mail, experts say. In a recent survey of 120 firms with CI systems, the SCIP and Fuld & Co. found that the most commonly used CI tools are intranets, Lotus Notes, Microsoft Corp.'s Access database package and the knowledge management package from Chicago-based Wincite Systems.

"But at best, these applications deliver and organize information. They do not analyze and hence do not create intelligence," Fuld says. "The survey shows there's a pretty large unmet demand for [analysis] packages that really work."

Pacific Enterprises, Inc., a public utility holding company in Los Angeles, decided three years ago to establish a CI program in response to deregulation. "There was a great deal more competition, and we realized we had to become a much more externally focused company," says Chuck Rooney, director of business strategies.

Rooney rejected Notes as "too complex" and instead built an intranet and a CI application that resembled an Internet newsgroup. Employees were encouraged to post "interesting" observations and rumors about competitors and the industry. Those and replies from other employees were kept as threaded discussions.

Rooney says he wanted a system that was communications-oriented and geared to delivering the latest information, not one built on databases of historic information. "There are so many information sources via the Internet and subscription services that we decided it didn't make sense to be experts on storage," he says. "We decided to be experts on retrieval."

The $2.7 billion utility spends $300,000 per year on its CI program. The CEO uses the system to solicit opinions from throughout the company, even from low-level employees who wouldn't dream of communicating with senior management by more traditional means.

But Rosenkrans, now CI coordinator at Zeneca Pharmaceuticals in Wilmington, Del., cautions, "Some companies build the mother of all databases, and two things happen. First, no one is there to feed it, so maintenance becomes a nightmare. Second, it's so poorly focused, there are a jillion things in there, most of which are worthless, and there's no one to figure out what's good."

For some, the term "competitive intelligence" evokes images of computer hacking, Dumpster diving and other cloak-and-dagger activities. But SCIP members agree to strict legal and ethical guidelines. And they say there is enough information available from aboveboard sources to make unethical methods unnecessary.

"Eighty percent of the information you want is available publicly or from the people in your own organization," says SCIP President Ava Youngblood. "And the real value comes from the synthesis and analysis you do with the information."

John Nolan, a principal at CI consultancy Phoenix Consulting Group in Huntsville, Ala., frequently calls his clients' competitors seeking information. About half the time, the people he calls answer his questions without hesitation. Another 35% demand to know on whose behalf Nolan is calling but agree to answer his questions anyway when Nolan tells them he isn't at liberty to say. "They say, 'Oh, I understand about confidentiality. What do you want to know?' " he says. □

Anthes is Computerworld*'s editor at large. His Internet address is gary_anthes@cw.com.*

Cyberspook toolbox

Spy technology is coming in from the cold. Though not yet in widespread use, powerful tools for data searching, fusion, analysis and visualization — developed for defense, law enforcement and intelligence agencies — are becoming commercially available.

"They are slowly becoming appreciated by the commercial sector, and they have enormous potential," says Wayne Rosenkrans, research planning analyst at Zeneca Pharmaceuticals.

For example, Semio Corp., a French firm with offices in Mountain View, Calif., has SemioMap, which is "text mining" software intended to find relationships and relevance in unstructured and poorly understood data. Paris-based Datops has a similar product called Pericles that combines data from highly disparate sources to produce intuitively understandable "knowledge maps" tailored to the interests of each user.

"This stuff is just waiting to burst into the mainstream," says Steve Arnold, president of Arnold Information Technology in Harrods Creek, Ky.

A few tools go beyond retrieval and organization of data and into the realm of analysis, says CI consultant Leonard Fuld of Fuld & Co. For example, KnowledgeX Analyst from KnowledgeX, Inc. in Atlanta; DR-Link from Manning & Napier Information Services in Rochester, N.Y.; and GrapeVine from GrapeVine Technologies LLC in Troy, Mich., not only pull information together, but also can discover relationships and display them in graphs and maps, he says.

DR-Link is an online service that taps in to 4,000 text sources such as trade publications. It can handle freely formatted questions such as, "What are leading Wall Street analysts saying about the impact of the Asian financial crisis on U.S. semiconductor sales?" The displayed results let the user click on and drill into areas of special interest. — Gary H. Anthes

RESOURCES

Corporate Information *www.corporateinformation.com*
▸ Information about public and private companies around the world

Securities and Exchange Commission *www.sec.gov/edaux/searches.htm*
▸ Searchable database of financial filings by U.S. public companies

Hoover's Directories *www.hoovers.com*
▸ Profiles of thousands of companies

CorpTech *www.corptech.com*
▸ Information on 45,000 high-tech companies

CEO Express *www.ceoexpress.com*
▸ Company profiles, financial information, pointers to trade magazines and more

The Monster Board *www.monsterboard.com*
▸ Job openings at your competitors' companies

IBM Patent Server *www.patents.ibm.com*
▸ Searchable database of 2 million U.S. patents

Fuld & Co. *www.fuld.com*
▸ A gateway to the Internet Intelligence Index, 300 CI sites

Society of Competitive Intelligence Professionals *www.scip.org*
▸ CI forums, job market, publications and peer assistance

Switchboard *www.switchboard.com*
▸ Addresses and phone numbers of 10 million people and companies

Trade Show Central *www.tscentral.com*
▸ Information about 50,000 trade shows

Deja News *www.dejanews.com*
▸ What people have been saying in Internet newsgroups

Inquisit *www.inquisit.com*
▸ A subscription service that will alert you when there's news about companies or topics you're following

Expert Pages *http://expertpages.com*
▸ Find experts on any topic

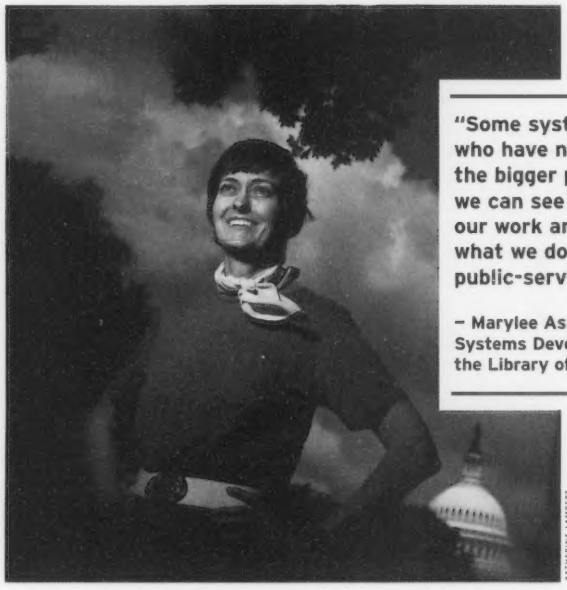
IT Careers

The hiring *frenzy* continues

COMPUTERWORLD'S THIRD Quarter HIRINGSURVEY

By Emily Leinfuss

IT managers still have ambitious hiring goals for the months ahead. But only those winning at retention may find their staffing goals realistic



KATHERINE LAMBERT

"Some systems jobs have people who have no idea how they fit into the bigger picture or system. Here, we can see the site, the results of our work and even the impact of what we do because we are in the public-service sector."

– Marylee Ashley, group leader of Systems Development Group II at the Library of Congress, Washington

YEAR 2000 CONVERSION WORK, Internet and intranet development and enterprise resource planning implementations are just a few of the areas where there aren't enough skilled IT professionals to go around.

But wait. It will get worse. Information technology managers hope to increase their staffs by nearly 7% on average in the year ahead, according to the results of *Computerworld*'s third-quarter hiring survey. To lure that new talent, they'll be paying a lot more.

But scrambling to hire new employees, and throwing money at them, isn't the only answer to the hiring crunch. Keeping the good workers you have is the other solution. In fact, IT managers who report successful retention programs for their staff say recruiting isn't all that bad.

The rest are facing the worst IT staff and skills shortage ever. That was evident recently during a World Wide Web-based human resources chat forum, where a hiring manager at the Rochester Institute of Technology asked a very popular question:

"We are having problems attracting and retaining qualified information systems folks. We are also concerned about paying really huge salaries. What kind of strategies are you using to attract and retain these professionals?"

No surprise here: The chat stream indicated that others were having the same problem. Respondents also said anyone responsible for hiring and retaining IT professionals should be doing no less than *all* of the following:

1. **Give referral (finders') bonuses** to employees for bringing on board an IS person who stays.
2. **Pay sign-on bonuses** to new hires.
3. **Offer retention bonuses** to current staff who stay on board.
4. **Give special compensation** to an employee if he obtains a college or university degree while on the job.
5. Realize that **money isn't everything.**

Gee, is that all?

MONEY CAN'T BUY ME LOVE

It's obvious that money is still the primary incentive used to lure and retain IT professionals. But most experts agree that money isn't the long-term answer for hiring, and especially for keeping, skilled IT personnel.

"Money is not the only thing. IT is already well-paid. For people to be committed to your organization, they need to know they are cared about. They must be enabled to be competent," says Richard Hadden, president of Corporate Education Systems in Jacksonville, Fla., and co-author of the book *Contented Cows Give Better Milk: The Plain Truth About Employee Relations and Your Bottom Line.*

Diane Tunick-Morello, a research director at Gartner Group, Inc. in Stamford, Conn., calls that effort esprit de corps, or the "caring and feeding" of IT workers. She suggests that it's a vital step to retain anyone at a company. "It is a longer-term solution to solving what may not be just a short-term hiring crunch," Tunick-Morello says.

But how a company deals with today's labor market depends on whether it perceives the labor shortage as temporary. Tunick-Morello says we are on the precipice of major changes in the IT workforce. "How [a company] flexes its hiring and retention muscles today will make it stronger down the road," she says.

Ideas for such flexing include the following:

- **Improve the hiring process:** Restructure human resources practices and develop a dedicated IT human resources organization that knows the market, is empowered to make decisions quickly and can be careful and realistic about expectations for filling the position.

• **Set up retraining and skills development for internal people interested in moving into the IT area** — instead of always recruiting from the outside. Get over the assumption that hiring must bring in fully functional, ready-to-go workers. Plan in advance by nurturing entry-level people from inside your company — especially those who are eager for career training, Tunick-Morello says. That way, in a couple of years, you may have your skilled staff already in place.

• **Manage with heart.**

Say again?

Yes, heart.

Tunick-Morello says she is convinced that IT professionals look for a better balance between their professional lives and families and that they value respect and understanding. Offering that in the workplace is the key to holding on to staffers. She recounts a client who stepped in as chief information officer at a services company where there was a 40% turnover rate in the IT department. Within 18 months, the turnover rate fell to 14%, and the rate is still falling. That was accomplished with three major incentives:

1. **Absolute leadership.** "She stepped into a void and acted as a leader. Nothing can beat that," Tunick-Morello says.
2. **Establishing, demonstrating and living a set of values.**
3. **Respect for employees.** "She created, through leadership, values and respect, an esprit de corps in the organization that was missing at the company," Tunick-Morello says.

RETENTION IS KEY

"Our biggest success has been in retention. When retention is high, recruiting isn't as hard," says Roderick Purdy, vice president of human resources for corporate administration at Warner-Lambert Co. in Morris Plains, N.J.

Our hiring survey reveals the health care industry as one of the most competitive for IT hiring, coming in third for industries expecting the largest increase in IT staffing. As a result, Purdy says his pharmaceutical firm uses the whole spectrum of traditional methods for IT recruiting. Those methods include hiring incentives such as offering merit increases at project completion and restricted stock options as bonuses and developing a preferred provider arrangement with recruitment firms. And the company has a dedicated human resources staff just for IT recruiting.

"Understanding the technical aspects of the market gives more focus and understanding to the job," Purdy says. Having human resources recruiters with technical savvy speeds up the hiring cycle time, so you don't miss out on opportunities. And, when human resources understands technical trends, it can be more proactive and strategic in its hiring efforts, he says.

No company wants to hire unqualified personnel, but some are open to candidates who are promising but less qualified.

SOFTER SKILLS

"It is a heart thing," says Marylee Ashley, group leader of Systems Development Group II at the Library of Congress in Washington. "I look at how the person comes across in terms of the library's values. Do they work hard? What is their track record? Does this work catch their imagination? I can train people in a new Unix shell or C language, especially if they have motivation. It is the softer things that you can't train," she says.

The Library of Congress offers relatively low IT salaries compared with private industry. But it also has a very low turnover rate in IT. Ashley attributes that to strong job satisfaction and a mission that her people can get behind.

"Some systems jobs have people who have no idea how they fit into the bigger picture or system. Here, we can see the site, the results of our work and even the impact of what we do because we are in the public-service sector," Ashley says.

At Warner-Lambert, Purdy also considers IT professionals to be very creative by nature, and he says he's willing to make the work environment fit the needs of creative people. "Clearly, if the environment is more worker-friendly from a social contract standpoint, you will keep more people," Purdy says.

The same is true at Moog, Inc. in East Aurora, N.Y., where CIO Ron Book says turnover is extremely low because of the manufacturing firm's management environment. Book says the main ingredient in Moog's high retention rate is the fact that it is seen as a family. □

Leinfuss is a freelance writer in Sarasota, Fla.

"Our biggest success has been in retention. When retention is high, recruiting isn't as hard."

– Roderick Purdy, vice president of human resources for corporate administration at Warner-Lambert, Morris Plains, N.J.

THE TOP INDUSTRIES FOR PERMANENT IT STAFF HIRING

Projected staff increases or decreases for the next quarter and for 12 months. Based on survey responses from 5,611 companies with an average of 50 IT employees.

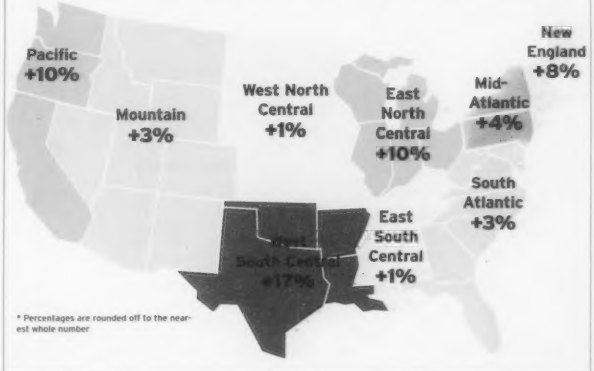
INDUSTRY	3-MONTH CHANGE	12-MONTH CHANGE*
Business services (other than IT)	+11%	+20%
Education	+4.3%	+19%
Health care/medical services	+3.1%	+14%
Manufacturing (other than computer)	+3.5%	+8.9%
Wholesale/retail/trade	+3.3%	+8%
Government (state, city and town)	+1.2%	+5%
Financial/insurance/real estate	+1.9%	+3.3%
Mining/construction/refining	+1.7%	+3.2%
Government (federal and military)	-0.8%	+2%
Communications/utilities/transportation	+0.7%	+0.3%
Other industries (totals combined)	+5%	+8%
TOTAL HIRING PROJECTION	+2.4%	+6.6%

* The 12-month projection figures include the 3-month staffing change

(Editor's note: It isn't possible to attach an actual number of job vacancies to these percentage increases because 1997 IT population data from the federal Bureau of Labor Statistics won't be available until at least August. That makes it impossible to project any sample data against the larger workforce population.)

THE HOTTEST REGIONS FOR IT HIRING

Total permanent IT staffs are expected to increase by the following percentages in the next 12 months. Based on survey responses from 5,611 companies



* Percentages are rounded off to the nearest whole number

THE TOP INDUSTRIES FOR IT CONTRACTOR HIRING

Projected staff increases or decreases for the next quarter. Based on survey responses from 4,562 companies

INDUSTRY	3-MONTH STAFFING CHANGE
Government (state, city and town)	+11%
Business services (other than IT)	+8.5%
Government (federal and military)	+6.9%
Mining/construction/refining	+6.4%
Education	+3.9%
Manufacturing (other than computer)	+3.8%
Other industries (totals combined)	+1.6%
Financial/insurance/real estate	-1%
Wholesale/retail/trade	-1.7%
Communications/utilities/transportation	-2.1%
Health care/medical services	-3.6%
TOTAL HIRING PROJECTION	-0.7%

(Editor's note: Because it's difficult for IT hiring managers to forecast their needs for contractor labor 12 months into the future, we have limited the contractor hiring projections to the next quarter.)

REGIONAL SCOPE

A Bay Area JOB PRIMER

By Jill Vitiello

Got the itch to Bay-watch or to work in the valley of the vendor kings? Here's a peek at what you can expect for jobs and cultures

THE TOP IT SKILLS & JOBS

Skills in highest demand: Corresponding job titles

NETWORKING: Network administrators, architects and designers, and LAN/WAN specialists

INTERNET/INTRANET DEVELOPMENT: World Wide Web site developers and designers, and trainers

PROGRAMMING: C++, Java and Hypertext Markup Language programmer/analysts

HELP DESK: Same as above

PROJECT MANAGEMENT: Same

Source: Katherine Spencer Lee, RHI Consulting, Inc., San Francisco

San Jose

Called the capital of Silicon Valley, this nearby city is in the cutting edge of work environments

SAN JOSE CONVENTION & VISITORS BUREAU

San Francisco

The earthquake of 1989 caused highways to collapse, prompting flexible arrangements such as telecommuting

SAN FRANCISCO CONVENTION & VISITORS BUREAU PHOTO BY DAVID WEINTRAUB

Trend Watch

Former U.S. President Jimmy Carter once said, "Whatever starts in California unfortunately has an inclination to spread." Are the following work and life benefits coming soon to a Midwestern or Eastern company near you?

- **Concierge services**
- **Dry cleaning pickup and delivery**
- **On-site car maintenance**
- **Pet-sitting services for employees who travel on business**
- **Subsidized summer camp programs for employees' kids**
- **Salary increases, performance bonuses and equity incentives**

"Some companies in the area allow employees to bring their pets to work with them," says Linda Marks, a staffing expert at New Ways to Work in San Francisco.

Chevron Corp. in San Francisco supports local summer camp programs for middle school-age children who don't need child care during most of the year. Camps give priority to employees' kids. Offerings include science and technology camp and community service programs, says Sue Osborn, work/family coordinator at Chevron. "Equity incentives are very big in Northern California," Osborn says.

The Mouse Pad Traveler

Visit these Web sites for information on the San Francisco Bay area, San Jose and Silicon Valley, and regional career opportunities.

www.sfgate.com
SAN FRANCISCO CHRONICLE AND SAN FRANCISCO EXAMINER
Offers news, events listings and feature articles about the Bay area

www.sanjose.org
SAN JOSE CONVENTION AND VISITORS BUREAU
Offers travel tips, events and conference schedules

www.careeraction.org
CAREER ACTION CENTER, CUPERTINO, CALIF.
Offers job listings galore, though not entirely information-technology specific

www.oaklandnet.com
OAKLANDNET
Offers business, events and entertainment listings for goings-on around Oakland

www.sacramento.org/sacramento
THE OFFICIAL SACRAMENTO HOME PAGE
Offers listings on all aspects of life in Sacramento

Sell Your Bay Area Story

Business journals have recently reported that "good" stories about the Bay area and Silicon Valley are bringing their creators big bucks. Look for Paramount Pictures' romantic comedy called *20 Billion*, which is about a wealthy software mogul; a Fox TV drama called *Killer App*, which is based on an idea by a Silicon Valley reporter; and a book by best-selling author Michael Lewis on Silicon Valley tycoons, which reaped an advance of $1.2 million. Do you have a novel or screenplay in you?

You Can't Find 'The Valley' On A Map

So, where in the world is Silicon Valley, anyway? According to local lore, the high-tech boom and silicon chip-based semiconductor industry was born in Santa Clara County, Calif., in the 1960s around metropolitan San Jose, which is considered the capital of Silicon Valley. The region's boundaries generally are considered San Mateo in the north; the Santa Cruz mountains in the west; Morgan Hill, which is just south of San Jose, in the south; and the San Francisco Bay/Diablo Mountains in the east.

Unemployment Rate

CITY	JAN. 1997	JAN. 1998
Oakland	7.6%	6.7%
San Francisco	4.2%	4.0%
Sacramento	7.5%	7.3%
San Jose	4.1%	3.5%

Flexible Workweeks

Yes sir, there's nothing like a natural disaster to prompt change. When the highways in and around San Francisco collapsed in the earthquake of 1989, people had more difficulty than ever getting to work.

"The earthquake created opportunities for telecommuting and flexible work arrangements," Osborn says.

Now San Francisco, Oakland and Sacramento companies lure talented information systems professionals with a menu of flexible work schedules.

Those include: ■9/80 : So named because you work 80 hours in nine days' time. Generally, people work nine hours Mondays through Thursdays and eight hours on Fridays, with every other Friday off.

■4/10 : Employees log the standard 40-hour workweek by clocking 10 hours per day for four days every week. Mondays or Fridays off are the most popular choices.

■Telecommuting : Have laptop, will work — wherever. Companies usually require core days in the office on Tuesdays, Wednesdays and Thursdays to make it easier to schedule meetings. □

Vitiello is a freelance writer in East Brunswick, N.J.

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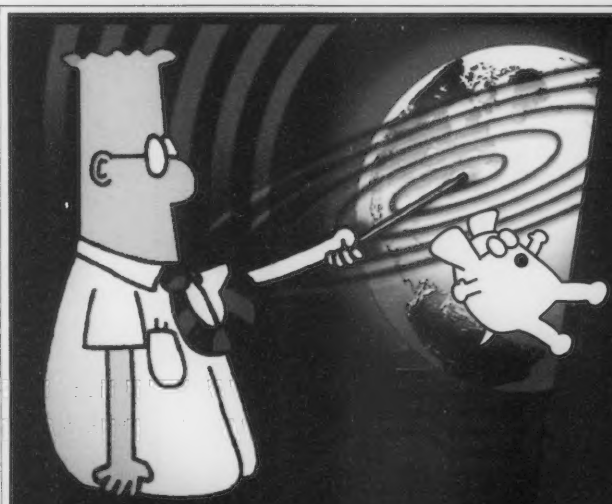
DECISION TECHNOLOGIES



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Software Engineer to research, design & develop computer s/ware systems; program GUI using OS/2 PM & C/C++ utilizing IPMD & Prominare; analyze s/ware requirements to determine feasibility of design; design & package client/server system into generic system & reusable system; develop revenue management system utilizing NOMAD & SAS for Windows 95 SUN & Windows NT servers; formulate & design s/ware to meet client needs; Reqs. Master's in Comp. Sci., Comp. info. Systems, or Comp. Engg., 2 yrs exp in job offered or 2 yrs related exp such as Sr. Programmer Analyst, Consultant or Research Assistant. Related exp must include programming GUI using OS/2 PM & C/C++ utilizing IPMD & Prominare for OS/2, designing & packaging client/server system into generic reusable system. Must have used SAS for Windows 95, SUN & Windows NT servers; $64,085/yr, 40 hrs/wk, 8a-5p. Must have proof of legal authority to work permanently in US. Send 2 copies of resume & cover letter (no calls) to Illinois Dept. of Employment Security, 401 S. State St. - 7 North, Chicago, IL 60605, Attn: Janet Aschenbrenner, Ref. #V-IL18743-A "Employer paid ad"

Senior Programmer
Monday through Friday; 8:00 a.m. to 5:00 p.m.; 40 hours per week; $40,000 annually. Required is a Bachelor of Science degree in Management Information Systems, Mathematics, Computer Science or Engineering and two (2) years of experience in the position being offered or two (2) years of experience in the related occupation of Systems Analyst, Software Engineer, or Programmer. In lieu of the Bachelor of Science degree and two years of experience, the employer will accept a Master of Science degree in Management Information Systems, Mathematics, Computer Science or Engineering. As part of the required experience in the position being offered or in the related occupation or as part of the person's graduate education, the applicant must have had experience or training in Visual C++ (or Visual Basic), C/C++, and SQL and had experience in designing, developing and implementing software to support different databases, including Access, Oracle Ingres, Sybase, and Informix is highly desirable. Designs, documents, develops, implements, tests, and maintains UNIX and PC based computer software for warehouse management systems. Designs, develops, implements, and documents PC-UNIX Graphical User Interface (GUI), Client/Server applications using Visual C++, Visual Basic, Crystal Report, Graphic controls, MS Access, SQL, MS SQLServer, OBDC, TCP/IP in Windows 95 and Windows NT. Designs, documents, and implements software modifications in UNIX which is used by GUI and Client/Server applications using C/C++, Perl, SQL, OBDC, TCP/IP, Oracle, Sybase, Ingres, and Informix. Maintains, debugs and documents GUI, Client/Server applications in PC and C, Perl scripts in UNIX systems. Interested applicants submit two (2) resumes to DWE-ALC, c/o: Mike Brooks, Post Office Box 7972, Madison, WI 53707-7972. Case #C100425. AN EMPLOYER PAID AD.

Systems Analyst/Programmer. Duties: Manage the reconfiguration of complex computer system. Write programs using COBOL and VisualBasic. Prepare detailed plans to implement computer conversions for date compliance. Perform assessment of noncompliant software and databases. Work with customer users to identify application's current operational procedures. Program functions and known flaws. Plan daily work schedule in coordination with conversion support team. Monitor progress of system conversion. Supervise team programmers and monitor progress. Resolve problems and control entry of work into compliance process. Responsible for systems development, implementation of user specifications and changes, and system testing for multi-operating systems and large databases including HPUX and VMOS. Perform network maintenance including troubleshooting, new design and network support functions. Requires: B.S. in Comp. or Info. Science, Econ. or related field & 2 yrs. exp. in the job offered or 2 yrs. exp. as a Systems Analyst. Exp. which may have been obtained concurrently, must include 2 yrs. exp. writing programs using COBOL and VisualBasic & 1 yr. exp. in HPUX & VMOS operating systems. EOE. 40 hrs./wk.: 8:00 am to 5:00 p.m. Salary: $68,000/yr. Send resume (no calls) to: Lorna Zellar, CTG, Inc., 200 Public Square, E372-C, Cleveland, OH 44114.

Programmer/Analyst (Client site in Austin, TX and various unanticipated worksites in TX). Analyze, design, develop, code, test, implement and maintain programs for commercial and financial applications systems using COBOL, CICS and DB2 on IBM mainframes. Bachelor's Degree in Comp. Sci., Engin., or Math + 2 yrs. exp. in job. $41,808/yr; 40 hr/wk; 8:30 a.m. - 5p.m. Apply at the Texas Workforce Commission, Austin, Texas or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78101. J.O. #TX0610748.

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Software Developer: Designs, develops, modifies, and implements financial software products to enable real time data from various sources to be transmitted to end users in a client/server environment. Uses principles of object-oriented technology to develop appropriate application sharing system using Visual C++ including Virtual Reality Menuing System to develop appropriate graphic user interfaces or communication protocols for installation and implementation in a Windows 95/Windows NT operating system which are installed in a client/server local area network. Modifies and implements a real-time Visualization and Debugger System using C/C++ and motif to insure accurate data transmission. Requires Master's degree or completion of all coursework for Master's Degree in Computer Science. Education to include completion of one project in use of Visual C++ and object-oriented technology for implementation of an application sharing system installed in a Windows NT or Windows 95 client/server environment. Education to include completion of one project in the design of distributed real-time Visualization and Debugger System using C/C++ and one project in the design of Virtual Reality Menuing System using C++. Hours: 9:00 a.m. - 5:00 p.m. 40 hours per week at $55,000 per year. Must have proof of legal authority to work permanently in the U.S. Please send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 S. State Street - 7 North, Chicago, IL 60605, Attention: Brenda Kelly, Reference #V-IL 18819-K. AN EMPLOYER PAID AD. NO CALLS.

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Software engineer with 2 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 2 years of experience using Oracle RDBMS, Developer 2000 (Oracle Forms and Reports) and some experience with SQL Plus, PL/SQL and Oracle Case. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $65,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 6018854 to: Mr. Clement Pizzutelli, Manager, Connellsville Job Center, 1051 Morrell Avenue, P.O. Box 868, Connellsville, PA 15425.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing using expertise in DB2, CICS, Cobol II, and MF Revolve. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2, CICS, Cobol II, and MF Revolve. **Salary:** $57,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Connellsville Job Center, 1051 Morrell Ave., P.O. Box 868, Connellsville, PA 15425. Job No. 9063075.

Systems Analyst: Salary. $3,020 per month (12 months), 40 hours per week. Administer and Manage Oracle Relational Database Management System (RDBMS) on UNIX server -- create and customize database instances, maintain data integrity and consistency, audit database activities, perform backup and tuning, create and administer users and functional roles. Serve as a leader in the design and development of Engineering profile database. Perform UNIX administration duties -- set up users, maintain file systems without corrupting the database, perform regular system backups, do system upgrades when required, monitor system performance. Additional duties include administering and managing development/client tools for client-server based computing, supervise graduate student worker, prepare reports, write programs to automate system operation in high level programming languages such as C, SQL, etc. Requires B.S. degree in Computer Science, Math, or Engineering, and 6 months related experience in Engineering Research and Application Software Development. Apply at the Texas Workforce Commission, Bryan, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, J.O. #TX0241672. Ad Paid by an Equal Opportunity Employer.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in: DB2/400, RPG 400, and Query/400. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2/400, RPG 400, and Query/400. **Salary:** $57,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Charleroi Job Center, 10 Paluso Drive, P.O. Box 210, Charleroi, PA 15022. Job No. 5018799.

Software engineer with 2 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 2 years of experience using DB2, CICS, COBOL, VSAM, TSO, JES/2. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $62,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 8037831 to: Ms. Charlene Cogley, Manager, Beaver Falls Job Center, 2103 Ninth Avenue, Beaver Falls, PA 15010.

Systems Analyst -- Responsible for access to the Corporate Data Warehouse and the overall management of the Marketing Management System. Consult with internal sales, marketing and customer service customers that need support on the use of the Corporate Data Warehouse, the Marketing Management System or any other decision support applications; provide Tier Two support of these applications and any tools used with these applications, i.e., relational database (oracle, sybase), on-line analytical processing, Informix, and Metacube. Req. Bachelor degree in computer information science or related discipline plus 6 months exp. in job offered or as software engineer. Work 40hrs/wk. Sal.: $58,300/yr. Resume to: Dorothy Reese, BellSouth Advertising and Publishing Corporation, 59 Executive Park South, Atlanta, GA 30329.

Software engineer with 3 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Oracle, SQL Forms, Unix, Designer 2000, PL/SQL, and Developer 2000. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $75,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 1018788 to: Mr. Tom Rusnack, Manager, Charleroi Job Center, 10 Paluso Drive, P.O. Box 210, Charleroi, PA 15022.

Programmer/Analyst (Colorado Springs, CO; Pittsburgh, PA & other US client sites): Analyze, design, develop, code, test, implement & maintain telephony systems. Perform component, integration, system & migration tests of telephony systems. Develop & implement test strategies, plans & automated test plans, specs & procedures. Perform Test Mgt. Provide techl support. Environment: IBM Mainframe; CICS; COBOL; DB2; Oracle; Unix, VAX/VMS; SS7; DDTS; Visual Basic Test Automation Software. BS in Comp. Sci. or Math or Engg + 2 yrs exp in job off'd. $52K/yr; 40 hr/wk 9-5. Send resume to: JO# 9083761; Mr. Ron Marsh, Mgr; Alle-Kiski Job Ctr; 3 Kensington Sq., New Kensington, PA 15068.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in: Oracle 7.0, C++, X Windows, and EasyCase. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of Oracle 7.0, C++, X Windows, and EasyCase. **Salary:** $70,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Alle-Kiski Job Center, 3 Kensington Square, New Kensington, PA 15068, Job No. 9083059.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in: Progress 7.3, Progress 4GL, C and Unix. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of Progress 7.3, Progress 4GL, C and Unix. **Salary:** $56,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Pittsburgh West Job Center, 320 Bilmar Drive, Pittsburgh, PA 15203, Job No. 8037158.

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SOFTWARE ENGINEER (Lisle, IL). System administration & mngmnt; software sys dvlpmnt, troubleshooting & testing software on LAN & WAN in Novell Netware & Windows environment; work with UNIX o.s. & UNIX internals & develop & port TCP network based applications & protocols including NetBIOS over TCP, PPP, OSI, RIPV2, SNMP and DHCP; develop codes; perform networking eng & UNIX dvlpmnt duties & complex C programming functions; engage in systems troubleshooting activities including recreating & fixing customer problems in existing TCP/IP networking product; develop interface programs to integrate application software; & program at TLI levels in C, TCP/IP, UDO & IPC. Req's: Master's in Comp Sci, Comp Info Sys or Comp Eng & 3 yrs exp in job offered or 3 yrs as Adv Sys Eng, or Sr Scientific Officer or Sys Administrator or Software Consultant or Sr Programmer Analyst which must include at least 1 yr developing sys specifications, design architecture, sys administration and mngmt; troubleshooting & testing software on LAN & WAN in Novell Netware & Windows NT environment; developing codes; developing interface programs to integrate application software; developing user manuals and conducting training & programming in TLI levels in C, TCP/IP, UDP & IPC. M-F: 40hrs/wk; 8:00am-5:00pm; $70,000/yr; must have proof of legal authority to work permanently in the US. (EMPLOYER PAID AD - NO CALLS) Send 2 copies of both resume and cover letter to Illinois Department of Employment Security, 401 South State Street, 7 North, Chicago, IL 60605, Attn: Lydia Clarke, Ref #: V-IL 19112-E

SOFTWARE ENGINEER

Software Engineer to test computer programs for business applications; analyze and test software requirements to determine feasibility of design; direct software system testing procedures using expertise in Visual Basic, Sybase System SQA Suite 5.1, Crystal Reports and MS-Excel Macros. Requirements: Bachelor's degree in engineering, computer science or related field and 5 years experience as a software engineer or computer programmer, or Master's degree and two years experience, and knowledge of Visual Basic, Sybase System SQA Suite 5.1, Crystal Reports and MS-Excel Macros. Salary: $56,000/year. Working conditions: 8:00 A.M to 5:00 P.M., 40 hours/week. Apply: Washington Job Center, 75 East Maiden Street, Washington, PA 15301. Job No. 7037745.

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Requires experience in the design, analysis, maintenance and programming of mainframe applications software. Also requires skills for some or all of the following: Cobol, CICS, OS/JCL, Roscoe/TSO. Prefer prior experience supporting general ledger/payroll, personnel or patient accounting/patient management.

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Software engineer with 3 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Unix, Oracle, and C. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $70,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7037628, to: Mr. Clement Pizzutelli, Manager, Connellsville Job Center, 1051 Morrell Avenue, P.O. Box 868, Connellsville, PA 15425.

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SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing using: DB2/CICS, MF Revolve and MF COBOL. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2/CICS, MF Revolve and MF COBOL. **Salary:** $56,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Indiana Job Center, 350 N. Fourth Street, Indiana, PA 15701, Job No. 8037169.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Uniface, Oracle, Sybase, and C. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of Uniface, Oracle, Sybase, and C. **Salary:** $61,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Butler County Job Center, 227 West Cunningham Street, Butler, PA 16003, Job No. 2018677.

Software engineer with 4 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 4 years of experience using Oracle RDBMS, Windows, and UNIX. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $88,000/ yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 8037837, to: Mr. James Clarke, Manager, Uniontown Job Center, 32 Iowa Street, Uniontown, PA 15401.

Software engineer with 2 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 2 years of experience using SAP/R/3 and ABAP/4. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $140,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7037763, to: Mr. Tom Debosky, Manager, Indiana Job Center, 350 N. Fourth Street, Indiana, PA 15701.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in: DB2/CICS, VS COBOL II, SEEC COBOL and Expeditor. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2/CICS, VS COBOL II, SEEC COBOL and Expeditor. **Salary:** $56,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Greene County Job Center, 653 East High Street, Waynesburg, PA 15370, Job No. 5018466.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing using: Developer 2000, Oracle 7.1, Pro*C and PL/SQL. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of Developer 2000, Oracle 7.1, Pro*C and PL/SQL. **Salary:** $57,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Washington Job Center, 75 East Maiden Street, Washington, PA 15301, Job No. 5018472.

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Unix, Oracle and C. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $67,800/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9083770 to: Mr. Duane M. Brentzel, Manager, Greensburg Job Center, 599 Sells Lane, Greensburg, PA 15601.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in: DB2/CICS, VS COBOL II and EXPEDITER. **Requirements:** Bachelor's Degree in Computer Science or related field and 5 years experience as a software engineer or computer programmer, or Master's degree and two years experience and expertise in DB2/CICS, VS COBOL II and EXPEDITER. **Salary:** $56,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Washington Job Center, 75 East Maiden Street, Washington, PA 15301, Job No. 5018751.

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle RDBMS, PL/SQL, Unix, TCP/IP, Oracle Forms and Reports. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $85,000/ yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7037765 to: Mr. Vincent Mezeivtch, Manager, Mon Valley Job Center, 345 Fifth Avenue, Mckeesport, PA 15132.

Software engineer with 2 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 2 years of experience using Oracle RDBMS, Unix, POWERBUILDER, and GUI. Analyzes s/w requirements and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $74,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9083763 to: Mr. Richard Introcaso, Actg. Mgr., Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in: DB2/400, RPG 400, and Query/400. **Requirements:** Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2/400, RPG 400, and Query/400. **Salary:** $57,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Greene County Job Center, 653 East High Street, Waynesburg, PA 15370, Job No. 7037767.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in XWindows, MOTIF, TCP/IP, and C++. **Requirements:** Bachelor's Degree in Engineering or Computer Science and two years experience as a software engineer, knowledge of XWindows, MOTIF, TCP/IP, and C++. **Salary:** $65,000/year. **Working Conditions:** 8:00 A.M to 5:00 P.M., 40 hours/week. **Apply:** Charleroi Job Center, 10 Paluso Dr., P.O. Box 210, Charleroi, PA 15022, Job No. 9083073.

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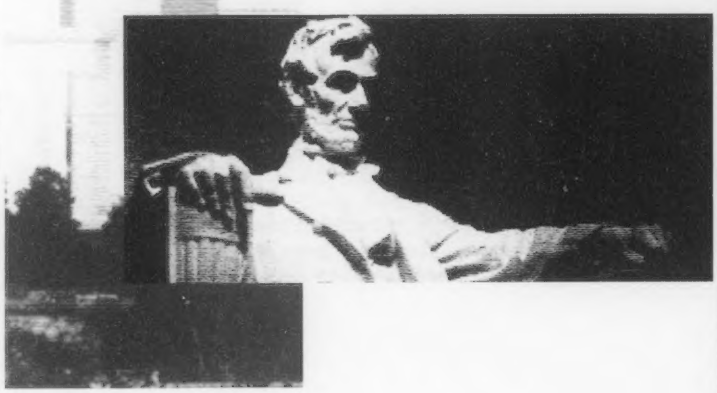

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The Week in Stocks

Gainers

PERCENT

Netscape Comm. Corp.	52.5
Excite, Inc. (H)	31.5
ObjectShare, Inc.	27.3
FTP Software Inc.	27.1
Amazon.com (H)	24.1
Cirrus Logic	20.9
Evans and Sutherland	20.4
Lycos Inc. (H)	19.4

DOLLAR

Excite, Inc. (H)	24.19
Amazon.com (H)	23.19
Yahoo! Inc. (H)	21.88
Netscape Comm. Corp.	14.00
Lycos Inc. (H)	13.13
Sapient Corp.	9.00
At Home Corp.	5.88
Evans and Sutherland	4.81

Losers

PERCENT

Parametric Technology	-44.9
Storage Computer Corp.	-23.0
Centura Software	-18.8
QMS Inc.	-14.1
Symantec Corp.	-13.1
Truevision Corp.	-13.0
Adaptec Inc.	-11.7
VLSI Technology	-11.7

DOLLAR

Parametric Technology	-13.09
Autodesk Inc.	-4.31
Symantec Corp.	-3.44
Sprint Corp.	-3.31
Hewlett Packard Co.	-3.00
Peoplesoft	-2.94
AT & T	-2.94
Struct. Dynamics Research	-2.81

INDUSTRY ALMANAC

Investors back off AT&T

AT&T Corp. (NYSE:T) thought it hit a home run with its June 24 purchase of cable television company Tele-Communications, Inc. (TCI; Nasdaq:TCOMA). The move was widely viewed as a way for AT&T to bring voice, TV and data services right into the homes of the huge consumer market.

Analysts even thought it was a visionary move. But investors ruled the play an error, underscoring that judgment with a 13% plunge of AT&T's stock to 56 3/4 two days after the announcement of the deal.

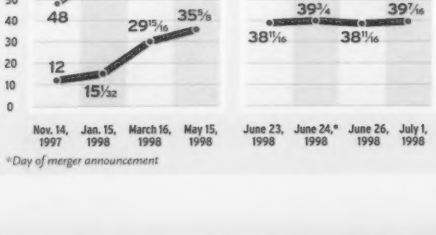
The stock stayed at that level into last week, and Basking Ridge, N.J.-based AT&T called two briefings with press and analysts. The purpose: make bold earnings projections and describe the forthcoming technology as AT&T moves to bring packetized phone calls, data and video over cable lines into homes. In the first briefing, AT&T Chairman C. Michael Armstrong declared, "I think this is a dynamite combination."

Analysts attribute at least part of the stock decline to the conservativeness of AT&T investors. "AT&T is a pretty widely held stock, with big blocks of institutional ownership, and it's always been known as Ma Bell, the conservative communications company that has always been consistent," says analyst Brian Eisenbarth at Collins & Co. in Larkspur, Calif. Buying Englewood, Colo.-based TCI for $48 billion also hurt. "When you lay that kind of money down, investors will wonder what's the timing of the return," Eisenbarth says.

This investment in the future is needed for the long-term growth of AT&T, analysts add, because it has been thwarted in its quest for the "last mile" to the home — controlled by the Baby Bells. The TCI deal sidesteps the need to rely on the Baby Bells. — Matt Hamblen

MA BELL'S MERGER BLUES

AT&T's stock has declined since it announced it would buy cable TV operator TCI



*Day of merger announcement

Exch	52-Week High	52-Week Low	Range	July 2 2 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**UP 2.8%**
COMS	59.69	22.94	3 COM Corp.	29.31	-1.06	-3.5
AIT	50.25	30.13	AMERITECH Corp.	45.06	1.31	3.0
ASND	56.75	22.00	Ascend Communications	48.75	-0.13	-0.3
T	68.50	34.00	AT & T	54.63	-2.94	-5.1
BNYN	13.38	1.75	Banyan Systems Inc.	7.97	1.28	19.2
BAY	41.88	21.38	Bay Networks Inc.	31.69	0.06	0.2
BEL	53.00	34.00	Bell Atlantic Corp.	46.63	1.19	2.6
BLS	69.50	43.31	Bellsouth Corp.	68.63	-0.50	-0.7
BRKT	22.75	9.25	Brooktrout Technology	14.38	0.25	1.8
CS	38.50	11.44	Cabletron Systems	12.81	0.63	5.1
CGRM	21.88	8.56	Centigram Communications	11.81	0.50	4.4
CSCO	94.88	45.13	Cisco Systems Inc. (H)	92.69	3.88	4.4
CMNT	6.11	3.31	Computer Network Tech.	4.63	-0.38	-7.5
CNCX	16.00	7.88	Concentric Network Corp. (H)	33.75	4.75	16.4
DIGI	32.75	16.50	DSC Communications	30.38	0.50	1.7
FORE	26.75	13.25	FORE Systems Inc.	25.94	0.19	0.7
GDC	8.38	3.25	General Datacomm Inds.	4.94	-0.19	-3.7
GSX	53.00	35.81	General Signal Networks (L)	35.88	-0.63	-1.7
GTE	64.38	40.50	GTE Corp.	55.81	-1.63	-2.8
LU	84.44	36.06	Lucent Tech. (H)	82.88	2.63	3.3
MADGF	9.19	3.25	Madge Networks NV	4.69	0.00	0.0
MCIC	60.69	27.31	MCI Communications Corp. (H)	60.69	1.81	6.7
NETM	5.25	2.09	NetManage Inc.	3.22	0.34	12.0
NTRX	3.50	0.63	Netrix Corp.	2.31	0.00	0.0
NCDI	13.75	5.88	Network Computing Devices	8.00	1.25	18.5
NWK	22.38	11.63	Network Equipment Tech.	15.31	0.81	5.6
NN	69.38	18.94	Newbridge Networks Corp.	21.81	-0.44	-1.8
NT	69.25	39.69	Northern Telecom Ltd.	55.75	0.00	0.0
NOVL	13.44	6.66	Novell Inc.	12.44	-0.13	-1.0
ODSI	14.50	5.19	Optical Data Systems Inc.	6.22	0.59	10.6
PCTL	13.50	5.63	Picturetel Corp.	9.38	0.63	7.1
OPEN	3.50	0.97	Proteon Inc.	1.16	0.00	0.0
RACO	4.13	1.00	Racotek Inc.	2.69	-0.06	-2.3
RADS	29.38	13.63	Radiant Systems Inc	14.44	-0.06	-0.4
VRTL	11.63	3.63	Retix	4.50	0.59	15.2
SBC	46.56	26.75	SBC Communications	39.75	-0.75	-1.9
SFA	26.88	14.00	Scientific Atlanta Inc. (H)	25.63	0.81	3.3
SHVA	16.44	8.06	Shiva Corp.	8.69	0.00	0.0
FON	75.63	44.00	Sprint Corp.	70.31	-1.31	-1.5
QWST	41.06	13.63	QWest Communications Int' l, Inc.	36.06	2.88	8.7
SMSC	18.13	8.00	Standard Microsystems Corp.	8.69	0.19	2.2
USW	58.00	35.63	U S West Inc.	48.81	0.25	0.5
XIRC	18.00	8.63	Xircom	15.38	0.50	3.4
XYLN	31.31	13.38	Xylan Corp.	28.31	1.19	4.4
PCs and Workstations						**UP 1.0%**
AAPL	31.63	12.75	Apple Computer Inc.	29.75	1.63	5.8
CPQ	39.75	19.94	Compaq Computer Corp.	28.56	0.25	0.9
DELL	98.50	28.06	Dell Computer Corp.	92.88	0.75	0.8
GTW	59.25	25.06	Gateway 2000 Inc.	53.13	4.31	8.8
HWP	82.38	54.31	Hewlett Packard Co.	57.63	3.00	4.9
MUEI	21.00	8.44	Micron International Inc.	11.88	-0.56	-4.5
NIPNY	72.75	41.94	NEC America	46.25	2.50	5.7
SGI	30.13	10.94	Silicon Graphics	12.00	0.06	0.5
SUNW	53.31	30.38	Sun Microsystems Inc.	42.75	-0.88	-2.0
Large Systems						**UP 4.3%**
DGN	37.94	13.38	Data General Corp.	15.25	0.44	3.0
IBM	129.31	88.63	IBM	115.81	2.94	2.6
MDCD	6.63	3.13	Meridian Data Inc.	5.25	0.75	16.7
NCR	38.50	25.63	NCR Corp.	33.13	0.75	2.3
PRCM	18.63	6.13	ProCom Technology, Inc.	6.88	0.44	6.8
SQNT	31.25	10.50	Sequent Computer Sys.	11.94	-0.44	-3.5
TEXM	6.00	2.50	Texas Micro Inc.	3.75	0.19	5.3
SRA	60.75	22.88	Stratus Computer Inc.	25.00	1.25	5.3
UIS	28.56	7.38	Unisys Corp. (H)	27.63	0.00	0.0
Software						**OFF -0.9%**
ADBE	53.13	33.50	Adobe Systems Inc.	41.25	-2.00	-4.6
AMSWA	15.63	6.75	American Software Inc.	7.25	0.06	0.9
APLX	12.50	3.50	Applix Inc. (L)	3.94	0.13	3.3
ARSW	53.25	27.19	Arbor Software	30.19	-2.81	-8.5
ARDT	15.88	6.63	Ardent Software	11.25	0.75	6.0
ARSC	36.38	19.25	Aris Corp.	28.50	-1.13	-3.8
ADSK	51.13	30.50	Autodesk Inc.	34.13	-4.31	-11.2
BMCS	53.88	26.56	BMC Software Inc.	50.00	-1.38	-2.7
BOOL	26.00	14.13	Boole and Babbage	22.81	0.19	0.8
BOBJY	20.00	6.63	Business Objects	15.38	-1.88	-10.9
CAYN	3.50	0.94	Cayenne Software Inc.	1.44	0.00	0.0
CNTR	3.31	0.88	Centura Software	1.63	-0.38	-18.8
CHKPF	50.50	21.75	Checkpoint Software	31.75	0.00	0.0
COGNF	34.75	17.63	Cognos Inc.	26.88	0.94	3.6
CA	61.50	36.13	Computer Associates	57.50	-1.13	-1.9
CPWR	53.38	22.63	Compuware Corp.	50.38	2.63	5.5
CSRE	12.61	4.25	Comshare Inc.	7.88	-0.06	-0.8
COSFF	6.69	1.40	Corel Corp.	2.03	-0.22	-9.7
DWTI	5.38	2.13	Datawave Technologies Inc.	3.25	-0.25	-7.1
DCTM	59.63	24.38	Documentum, Inc.	47.13	-2.75	-5.5
FILE	30.13	7.25	Filenet Corp.	28.19	2.19	8.4
FRTE	16.56	3.69	Forte Software	5.72	-0.28	-4.7
FTPS	5.00	1.38	FTP Software Inc.	1.91	0.41	27.1
GPSI	40.00	20.38	Great Plains Software, Inc (H)	38.94	3.06	8.5
HUMCF	54.25	24.38	Hummingbird Comm. Ltd.	26.13	-0.88	-3.2
HYSW	48.63	21.25	Hyperion Software Corp.	27.81	-2.56	-8.4
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INPR	12.19	5.88	Inprise Corp.	7.63	0.50	7.0
INGR	14.19	7.19	Intergraph Corp.	8.31	-0.44	-5.0
LEAF	4.00	1.38	Interleaf Inc.	1.75	-0.22	-11.1
ISLI	21.25	8.88	Intersolv Inc.	15.94	-0.50	-3.0
INTU	65.25	22.75	Intuit Inc.	62.25	1.88	3.1
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MANU	66.38	20.50	Manugistics Group, Inc.	24.00	-0.06	-0.3
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MENT	13.13	8.13	Mentor Graphics	10.31	-0.44	-4.1
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MGXI	14.88	5.75	Micrografx Inc. (H)	13.50	-1.25	-8.5
MSFT	110.13	59.00	Microsoft Corp. (H)	107.88	4.13	4.0
OBJS	5.25	0.44	ObjectShare, Inc.	2.63	0.56	27.3
OMTL	15.00	7.13	Omtool Ltd.	7.75	0.00	0.0
ORCL	42.13	17.75	Oracle Corp.	22.94	-1.50	-6.1
PMTC	36.31	16.09	Parametric Technology	16.09	-13.09	-44.9
PSFT	57.44	26.00	Peoplesoft	44.19	-2.94	-6.2
PTEC	18.38	8.88	Phoenix Technologies	11.25	-0.13	-1.1
PSQL	25.19	7.63	Platinum Software (H)	24.44	1.38	6.0
PLAT	31.13	12.75	Platinum Technology	29.38	2.28	8.4
PRGS	41.63	15.75	Progress Software Corp.	41.25	0.88	2.2
RNBO	30.00	16.63	Rainbow Technologies Inc.	19.63	-0.88	-4.3
REDB	11.63	3.63	Red Brick Systems Inc.	4.50	0.59	15.2
ROSS	5.40	2.00	Ross Systems, Inc.	5.06	0.25	5.2
SCOC	7.25	3.25	SCO Inc.	4.59	0.47	11.4
SDTI	44.38	15.13	Security Dynamics Tech.	17.69	-1.31	-6.9
SSW	30.25	15.44	Sterling Software Inc. (H)	29.38	-0.44	-1.5
SDRC	30.00	15.25	Struct. Dynamics Research	21.31	-2.81	-11.7
SYBS	23.63	6.13	Sybase Inc.	6.88	-0.03	-0.5
SYMC	32.63	17.88	Symantec Corp.	22.75	-3.44	-13.1
SNPS	47.13	29.13	SynOpsys	43.00	-1.88	-4.2
SSAX	17.63	6.38	System Software Assoc.	7.63	1.22	19.0
SYSF	14.50	1.06	Systemsoft Corp.	1.44	0.06	4.5
BAANF	55.50	28.56	The Baan Co.	36.50	-1.56	-4.1
TRUV	5.19	0.75	Truevision Corp.	1.25	-0.19	-13.0
VIAS	65.25	12.38	Viasoft Inc.	15.69	-0.19	-1.2
VSIO	50.88	26.50	Visio Corp.	47.25	2.25	5.0
WALK	20.44	11.88	Walker Interactive Systems	14.25	-1.06	-6.9
WALL	28.25	10.13	Wall Data Inc.	13.88	1.88	15.6
WANG	52.25	18.63	Wang Laboratories Inc.	25.50	0.69	2.8
Internet						**UP 13.2%**
AMZN	119.38	9.06	Amazon.com (H)	119.38	23.19	24.1
AOL	111.00	28.25	America On-Line (H)	109.25	2.50	2.3
ATHM	57.25	16.63	At Home Corp.	51.88	5.88	12.8
EDFY	22.13	8.06	Edify Corp.	10.50	1.25	13.5
XCIT	102.25	14.00	Excite, Inc. (H)	100.94	24.19	31.5
SEEK	45.00	4.69	Infoseek Corp.	37.19	3.31	9.8
LCOS	82.44	12.00	Lycos Inc. (H)	80.63	13.13	19.4
NSCP	49.50	14.88	Netscape Comm. Corp.	40.69	14.00	52.5
NSOL	58.00	11.75	Network Solution Inc	44.19	1.56	3.7
OMKT	29.13	8.88	Open Market Inc.	19.56	0.44	2.3
PEGS	31.00	12.50	Pegasus Systems	26.25	-0.25	-0.9
PSIX	15.25	4.25	PSINet	13.31	0.50	3.9
QDEX	3.40	0.63	Quarterdeck Corp.	0.75	0.09	14.3
SCUR	15.25	5.50	Security Computing Corp.	10.25	0.25	2.5
SPYG	15.38	4.06	Spyglass Inc.	12.13	0.50	4.3
YHOO	171.63	22.38	Yahoo! Inc. (H)	171.63	21.88	14.6
Semiconductors						**UP 0.1%**
AMD	42.75	16.38	Advanced Micro Devices	16.63	-1.00	-5.7
ADI	39.63	22.00	Analog Devices Inc.	24.94	0.31	1.3
CRUS	12.75	8.88	Cirrus Logic	11.19	1.94	20.9
CY	18.94	7.38	Cypress Semiconductor Corp.	8.19	0.38	4.8
INTC	102.00	65.66	Intel Corp.	73.81	-2.38	-3.1
LSCC	74.50	25.63	Lattice Semiconductor	29.19	-0.31	-1.1
LSI	36.75	18.63	LSI Logic Corp.	23.06	-0.13	-0.5
MCRL	46.88	21.38	Micrel Semiconductor Inc.	33.19	0.19	0.6
MU	60.06	20.06	Micron Technology	26.13	1.06	4.2
MOT	90.50	48.56	Motorola Inc.	51.88	-1.19	-2.2
NSM	42.88	12.94	National Semiconductor (L)	13.19	-0.69	-5.0
RMBS	86.75	35.50	Rambus Inc.	58.88	1.25	2.2
TXN	71.25	39.63	Texas Instruments	58.13	0.06	0.1
VLSI	38.69	14.56	VLSI Technology	16.56	-2.19	-11.7
XLNX	57.13	28.50	Xilinx	34.00	-1.25	-3.5
Peripherals and Subsystems						**UP 0.5%**
ADPT	54.25	12.50	Adaptec Inc.	14.13	-1.88	-11.7
APCC	34.38	18.50	American Power Conversion	28.75	1.25	4.4
ANDA	2.81	1.00	Andataco Inc.	1.50	0.13	9.1
CREAF	29.38	11.00	Creative Technology Ltd.	12.38	-0.13	-1.0
RACE	12.75	0.50	Data Race Inc.	0.63	0.01	5.3
DTM	13.69	7.88	Dataram Corp.	12.63	1.00	8.6
EMC	47.63	19.38	EMC Corp.	44.88	0.19	0.4
EMLX	19.75	5.31	Emulex Corp.	5.88	0.25	4.4
ESCC	35.88	21.44	Evans and Sutherland	28.44	4.81	20.4
EXBT	14.13	5.63	Exabyte	8.03	0.41	5.3
IISFD	4.69	1.40	Intelligent Info. Systems (L)	1.41	-0.09	-6.3
IOM	16.75	4.75	Iomega Corp.	5.69	0.19	3.4
KMAG	23.25	5.13	Komag Inc. (L)	5.50	0.06	1.1
MTSI	34.88	13.00	Micro Touch Systems Inc.	17.81	0.19	1.1
MTIC	17.88	4.25	MTI Technology Corp.	9.50	0.50	5.6
AQM	23.06	2.25	QMS Inc.	3.44	-0.56	-14.1
QNTM	43.25	17.75	Quantum Corp.	19.50	0.25	1.3
RDUS	8.13	2.25	Radius Inc.	2.38	-0.25	-9.5
SEG	50.50	17.75	Seagate Technology	22.63	-0.44	-1.9
SOS	14.00	3.56	Storage Computer Corp.	3.56	-1.06	-23.0
STK	44.75	22.56	Storage Technology (H)	43.69	2.06	5.0
TEK	48.19	33.94	Tektronix Inc.	36.06	-0.25	-0.7
WDC	54.75	10.25	Western Digital Corp.	11.50	0.25	2.2
XRX	115.00	66.19	Xerox Corp.	102.69	1.75	1.7
Services						**UP 1.7%**
AMSY	31.13	17.63	American Mgmt. Systems (H)	29.50	0.06	0.2
ANLY	36.50	20.88	Analysts Int' l.	28.25	-0.38	-1.3
AUD	73.88	26.56	Auto Data Processing (H)	72.88	2.44	3.5
CATP	57.88	30.25	Cambridge Tech. Partners (H)	53.75	-2.25	-4.0
CEN	61.75	32.13	Ceridian Corp. (H)	57.81	-0.94	-1.6
CDO	23.25	12.94	Comdisco Inc.	21.13	2.38	12.7
CPU	38.00	14.50	CompUSA Inc.	16.69	-1.88	-10.1
CHRZ	53.50	25.75	Computer Horizons	36.88	0.88	2.4
CSC	65.63	33.63	Computer Sciences (H)	64.06	2.19	3.5
TSK	49.38	27.00	Computer Task Group	33.63	3.00	9.8
EGGS	12.75	3.75	Egghead Discount Software	9.00	0.50	5.9
EDS	50.88	29.56	Electronic Data Systems Corp.	38.50	1.31	3.5
ICO	39.63	22.63	Inacom Corp.	31.63	-0.81	-2.5
KEA	59.44	24.00	Keane Inc.	55.88	2.56	4.8
MICA	29.75	10.06	Microgace Inc.	14.13	-0.06	-0.4
PAYX	45.00	21.69	Paychex	43.75	-0.19	-0.4
PMS	43.50	24.00	Policy Management Sys.	38.50	0.06	0.2
REY	24.00	15.75	Reynolds and Reynolds	18.00	0.75	4.3
SAPE	57.88	23.88	Sapient Corp.	55.50	9.00	19.4
SCBI	14.75	6.50	SCB Computer Tech. Inc.	10.88	-0.13	-1.1
SEIC	76.00	24.00	SEI Corp.	62.50	-1.75	-2.7
SMS	82.69	47.50	Shared Medical Systems	74.63	3.25	4.6
SSPE	24.25	10.00	Software Spectrum Inc.	21.00	-1.38	-6.1
SDS	40.00	22.44	Sungard Data Systems	37.25	0.44	1.2
SYNT	39.88	5.69	Syntel, Inc.	30.56	-2.06	-6.3
VST	17.25	11.00	VanStar Corp.	15.00	0.63	4.3

Note: The market was closed July 3, in observance of Independence Day.

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Companies in this issue

Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

3Com Corp.....14,25,39
Aberdeen Group, Inc. 24
ABT Corp. 55
Air Transport Association 2
Akzo-Nobel. 35
Alden Buick Pontiac GMC.....C1
Alternative Resources Corp. 6
Amdahl Corp.....45
American Internet Corp.....14
American Re-Insurance Co. 4
Andersen Consulting.....12,35
Anthem, Inc.....50
APL Group.....79
Arnold Information Technology.....63
Aspect Telecommunications, Inc.....14
AT&T Corp.....29,76
Bank of America.....C1
Bank of Montreal.....35
BankAmerica Corp. 24
BankBoston Corp. 24,50
Banyan Systems, Inc.....39
Baptist Healthcare.....14
Barrington Research Associates, Inc. ..6
Bath & Body Works 35
Bay Networks, Inc.....14,25,39
Bell Atlantic Systems.....41
Bell Canada, Inc. C1
Benchmarking Partners, Inc.....35
Bergen County Utilities Authority 39
Biztravel.com 8
BMC Software, Inc. 45
Boole & Babbage, Inc.....45
Bristol-Myers Squibb Co.....62
Budget Rent-a-Car Corp. 16
BugNet.....16
Burger King Corp. 2
Cabletron Systems, Inc.....14,25
Cambridge Technology Partners, Inc.....35
Camp Dresser & McKee, Inc. 21
Cap Gemini 35
Cardservice International, Inc.....14
Catalina Marketing Corp.....C1
Chevron Corp. 20
Chicago Title Corp.....41
Chrysler Corp.....39
Church & Dwight Co.....C1,78
Cisco Systems, Inc. 14,25,37
Citrix Systems, Inc. 16
Clarkston-Potomac.....35
Collins & Co. 76
Compaq Computer Corp.....6,14,21,39, 41,45,55
Computer Security Institute 39
Concorde Solutions, Inc.....C1
Countrywide Home Loans, Inc. 14
Creative Networks, Inc.....39
Credit Lyonnais 16
Crosfield BV.....20
CrossWorlds Software, Inc. 41
Cumberland Farms, Inc. C1
Cutter Consortium 50
Data General Corp. 45
Dataquest.....25
Datops 63
DecisionOne Corp. 35
Defense Information Systems Agency 39
Dell Computer Corp. 45
Digital Equipment Corp.....6,55
Documentum, Inc. 41
Domino's Pizza, Inc.....35
Du Pont Polyester Films.....2
Dutch Ministry of Justice 20
E Technologies Associates LLC.....12
Egan Systems, Inc. 35
Electronic Data Systems Corp. 2
Elf Atochem North America, Inc. C1
EMC Corp. 45
Ericsson, Inc. 39
Estee Lauder Cos. 79
Extreme Networks, Inc.....25
Farmland Industries, Inc. 41
FDX Corp. 41
Federal Express Corp. 20,41
Federal Reserve Bank of Boston 24
Ferris Research, Inc.....39
Fidelity Investments.....39
Fifth Third Bank.....41
Financial Services Technology Consortium.....24
Finjan, Inc.....79
FirstPlus Financial, Inc.....41
Forrester Research, Inc. 4,37
Fox Meyer Corp. 12
Fuld & Co. 62
Ganymede Software, Inc.....39
Gartner Group, Inc. 2,16,35,41
GATX Capital Corp. 20
Geac Computer Corp. 20
Geac SmartStream 41
General Mills, Inc.....C1
George Mason University.....36
Geotel Communications, Inc. 14
Giga Information Group.....C1,20,35,78
GrapeVine Technologies LLC.....63
Greyhound Lines, Inc. 16
GTE Corp. 24
H & R Block, Inc. C1
Hachette Filipacchi New Media.....2
Harmony Software, Inc. 20
Harvard Pilgrim Health Care.....50
Haworth Corp. 6
Help Desk Institute 6
Hewlett-Packard Co. 14,39,45,55,79
Hitachi Data Systems Corp. 45
Hurwitz Group, Inc. 20,41
I2 Technologies, Inc. 78
IBM 6,8,9,12,14,20,24,37,41,45
Illinois Power Co. 41
Inacom Corp. 35
Infoseek Corp. 37
Intel Corp. 6,55
Intergraph Corp. 6,14
International Data Corp. ..C1,21,39,41,45
Internet Mail Consortium 8
J. D. Edwards & Co. 41
J. C. Penney Co. C1,50
J. D. Power & Associates, Inc. 37
Jupiter Communications, Inc. 37
Kiva Software, Inc. 9
Kmart, Inc. C1
KnowledgeX, Inc. 63
Kraemer ASA 39
Lawson Software, Inc. 20
Logility, Inc. 78
Lotus Development Corp. 37
Lucent Technologies.....C1,78
Lycos, Inc. 37
Manugistics, Inc. 35,78
Marimba, Inc. 41
McDonald's Corp. C1
MCI Communications Corp.....6,8
Meridien Research, Inc. 37
Meta Group, Inc.....6,35,52
Metreon 2
Microsoft Corp. C1,8,9,12,16,39, 41,55,62
Mobius Management Systems, Inc.....41
Mondex USA 2
Monsanto Co. C1,62
Motive Communications, Inc. 6
Motorola, Inc. 39,62
Multi-Health Systems, Inc. 80
Mustang Software, Inc. 8
Nabisco Brands Co. C1
Nabisco, Inc. 21,39
NASD, Inc. 45
NationsBank Corp. 24
NetDynamics, Inc. 9
Netopia, Inc. 37
Netscape Communications Corp. 9,12,20,37
Nokia Corp. 39
Nokia Telecommunications 20
Norfolk Southern Corp. 39
Northeast Consulting Resources, Inc. 14,39
Norwest Service, Inc. 45
Novell, Inc. 39,41
ObjectSoft Corp. 41
Olivetti Computers Worldwide 45
Open Port Technology, Inc. 41
Oracle Corp. 4,9,20
Ouellette & Associates 35
Orum Ltd. 20
PC Docs, Inc. 41
PeopleSoft, Inc. 35,55
Piper Jaffrey, Inc. 6
Platinum Technologies, Inc. 37,45
Precision Auto Design.....37
Prentice Hall PTR 52
Price Waterhouse LLP 39
Printrak International, Inc. 12
Pro Staff Personnel Services 21
Psion PLC 39
Quintus Corp. 35
Renaissance Worldwide, Inc. 14,25
Revnet Systems 8
RHI Consulting 21
Rosenbluth International, Inc. 39
Royal Canadian Mounted Police.....12
Rubin Systems, Inc. 52
SAP AG C1,12,20,35,41,55,78
SCO, Inc. 55
Semio Corp. 63
Sequent Computer Systems, Inc.....55
Silknet Software, Inc. 6
SmithKline Beecham Corp.....62
Snap-On, Inc. 6
Sony Corporation of America 2
Southernview Technologies, Inc.....39
Sprint Corp. 8,14,45
SQL Financials International, Inc. 20
Starwave Corp. 37
STG International LLC.....41
Storage Technology Corp. 45
Summit Strategies, Inc.....14
Sun Microsystems, Inc. 9,24,55
Supermarkets Online, Inc. C1
Sybian Ltd. 39
SyNet, Inc. 12
SystemSoft Corp. 6
Tactical Strategy Group, Inc. 50
Tapestry.Net 35
TCI 29
Tele-Communications, Inc. 76
Telescope Ltd. 62
TemPositions.....35
Textron, Inc. 52
The Baan Co. 6
The Burton Group.....39
The Chase Manhattan Bank Corp. 52
The Clipper Group, Inc. 45
The Delphi Group.....41
The Hartford Insurance Co.....39
The Hurwitz Group, Inc. 52
The Information Economics Press 52
The New York Mercantile Exchange...35
The Security Experts, Inc. 39
The Standish Group International, Inc. 55
The Walt Disney Co. 37
The Yankee Group.....14,24
Ticketmaster Ticketing, Inc.....14
Tribal Voice 39
Unisys Corp. 45
United Healthcare Corp. 35
Vantage Point, Inc. 41
Vitria Technology, Inc. 41
Volvo AB 20
Wang Laboratories, Inc. 45
Warner Bros. Online.....37
Warner-Lambert Co. .....
Westinghouse Electric Corp. 6
Wilsons The Leather Experts, Inc. 20
Xylan Corp.....14
Young & Rubicam, Inc. C1

ADVERTISERS INDEX

Amdahl C3
http://www.amdahl.com
Ardent Software 53*
http://www.ardentsoftware.com
Cap Gemini 49*
http://www.capgemini.com
Compaq Computer Corp. C1-1, 30-31, 46-47, 58-59
http://www.compaq.com
Computer Associates 5, 18-19
http://www.cai.com
Dell 22-23
http://www.dell.com
Eastman Kodak 43
http://www.kodak.com/go/businessimaging
Filenet 13
http://www.filenet.com
Forté 15
http://www.forte.com
IBM 26-27, 36/37*
http://www.ibm.com
Innovation Data Processing 9
http://www.innovationdp.fdr.com
Lockheed Martin 33
http://www.lmco.com
Lucent Technologies 17
http://www.lucent.com
Meta Group 24
http://www.metagroup.com
NetObjects C4
http://www.netobjects.com
Netscape 3
http://www.netscape.com
Oracle Corp. 7
http://www.oracle.com
Platinum Technology 34
http://www.platinum.com
SAS Institute 11, 61
http://www.sas.com
Secure Computing 10
http://www.securecomputing.com
SEEC 28/29
http://www.seec.com
Xerox 44
http://www.xerox.com

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Vendors step up R/3 links

By Craig Stedman

WITH NEW competition from SAP AG on the horizon, supply-chain management software vendors are scurrying to finish standard R/3 interfaces that will save users from having to build and maintain custom links.

By year's end, the top supply-chain vendors — I2 Technologies, Inc., Manugistics, Inc. and Logility, Inc. — all expect to have their software equipped with code that maps to programming interfaces in SAP's market-leading applications.

Karen Peterson, manager of business process planning at a Lucent Technologies, Inc. division that makes power supplies and battery systems, is among users counting on the standard interfaces to make it easier to feed R/3-based business data into their planning systems.

I2 Technologies' production scheduling software "is the heartbeat of my company," Peterson said. But the software can't do anything without ties to business systems, and Lucent had to write custom interfaces to hook it to a series of homegrown mainframe applications.

Keeping the interfaces up to date with software changes on both ends has been tough enough that Lucent's Power Systems unit, in Mesquite, Texas, wants to avoiding repeating the do-it-yourself process as it implements R/3 and more of I2 Technologies' products.

WAITING ROOM

Standard R/3 interfaces are still in the works for these supply-chain tools:

Vendor	Products	Delivery schedule
I2 Technologies	Distribution planning	Year's end
	Supply-chain master planning	
	Order promising	
Manugistics	Production scheduling	This fall
Logility	Transportation planning	This summer

HOMEGROWN HEADACHES

"If you build your own interfaces, you just have huge amounts of maintenance to do," said Peterson, who is chairman of I2 Technologies' independent users group. Relying on vendor-supplied links should free users from having to worry about whether the interfaces will still work after software gets upgraded, she added.

Church & Dwight Co., a Princeton, N.J., baking soda maker that uses both R/3 and Manugistics' software, also likes the sound of standard interfaces that link the products.

"But until I see one, I'm going to be skeptical that you can take something out of the box, put it between them and have it work," said Mike Panesis, director of MIS at Church & Dwight.

I2 Technologies, in Dallas; Manugistics, in Rockville, Md.; and Atlanta-based Logility already have SAP interface certification on some of their planning software modules. But more is still to come (see chart).

The vendors' haste is driven in part by SAP's promise to ship an initial planning product of its own late this year.

Even though SAP's software probably won't fully match up on functionality, having a complete set of standard R/3 interfaces ready by the time it hits the market "is de rigueur" for I2 Technologies and its brethren, said Byron Miller, an analyst at Giga Information Group in Cambridge, Mass.

But the supply-chain vendors also have to make sure their interfaces are built well enough to pump through volumes of data, Miller said. Early reports on that score have been somewhat mixed, he added.

SAP planned to embed pieces of I2 Technologies' software in R/3, but that deal fell apart last summer after the German company decided to get into the planning business itself.

That leaves I2 Technologies "like every other planning and scheduling vendor" trying to sync up with R/3, said Larry Lapide, an analyst at AMR Research, Inc. in Boston. □

SAP users

CONTINUED FROM COVER 1

But getting SAP to add a feature that could keep track of special deals cut by Church & Dwight's sales force was no easy trick. SAP officials in Germany told their U.S. counterparts to "tell us to tell our customers to pay their bills on time," Panesis said. SAP America, Inc. finally agreed to write software on its own as an add-on to R/3, he added.

PATERNAL GERMANS

"I've been to Germany to ask SAP to make changes to R/3, and they kind of pat you on the head and say they know what's best for you," said Karen Peterson, manager of business process planning at Lucent Technologies' Power Systems division in Mesquite, Texas.

"But I think they're finally getting religion on this," said Peterson, who is in charge of an R/3 deployment that is scheduled to go live in October.

Efforts to reach SAP officials to comment on the arrangement with ASUG were unsuccessful. Officials at the user group, which has about 800 corporate members, declined to discuss the matter.

Some like-minded R/3 users have been able to get SAP's ear on development issues by banding together outside of ASUG, said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass. But in general, SAP has focused more on attracting new customers than on making changes for users who already have R/3, he said.

And user-group voting on proposed technical changes "is more commonplace for U.S. vendors than European ones" such as SAP, Holincheck added.

Monsanto Co. and about 40 other big companies formed an advocacy group of global R/3 users several years ago. "I really feel like we have direct pipelines to SAP's developers," said Gary Banks, worldwide R/3 technology director at St. Louis-based Monsanto.

The $7.5 billion conglomerate also plans to take part in the ASUG voting, "but we're just another company in there," Banks said. "And we try to be careful with our requests so we don't wear out our welcome with SAP."

Bell Canada is in a similar position. Though the Montreal-based telephone company is an ASUG member, Frank Barfuss, its business-side SAP project manager, said he expects to continue working mainly through a 60-member group of R/3 telecommunications users created three years ago.

But other users who haven't joined ad hoc R/3 groups are counting on the ASUG voting process to get their voices heard by SAP.

"It remains to be seen how seriously SAP takes this, but I think it's a good step forward," said Ben Vettese, director of SAP applications at Elf Atochem North America, Inc., a chemicals manufacturer in Philadelphia. "SAP is in a position now where [R/3] is pretty mature, and they can begin to do some things their users really want." □

More delays for NT 5.0

CONTINUED FROM COVER 1

mation technology arm of Bank of America. "We don't mind spending a little time with an older release that is tried and more stable."

"At this point, we haven't looked at anything mission-critical that NT 5.0 brings or anything we need to delay launches for," said a technical manager at a major agriculture manufacturer. "If we have new NT applications [to deploy], more than likely we'd just go with 4.0. There's no wait."

Jean Bozman, an analyst at International Data Corp. (IDC), said that because Microsoft is dragging its feet getting the next release of NT out the door, the company may be pitting NT 5.0 against NT 4.0.

"There's going to continue to be demand for NT," Bozman said. "IT managers are already into the environment. Applications will get larger, databases will get larger, and this will require IT managers to buy more NT. It's a setback for NT 5.0, but not necessarily for continued NT sales."

Bozman added that IDC research shows that NT is expected to post a 21% compound annual growth rate between last year and 2002. That is the fastest of any server-side operating system IDC tracks. Unix came in second at 9.8%.

The question is whether companies buying more NT 4.0 will invest in NT 5.0 soon after.

Most users said they probably won't be in a position to invest in a major operating system upgrade anytime around the turn of the century, when NT 5.0 is unofficially reported to be hitting the streets. That reason alone could delay buy-ins for up to a year.

Alden Buick's Paul Soares: "Delay is a fact of life"

MICROSOFT RESPONSE

Microsoft last week addressed the fact that Beta 2 for NT 5.0 didn't see the light of day by the end of last month, as was expected. It originally was due in early spring.

Tonya vanDam, Microsoft's group product manager for Windows NT Server, said Beta 2 should come out by fall.

Microsoft has sidestepped putting an official date on the release all along but unofficially has maintained for several months that it is expected in next year's first or second quarter. VanDam wouldn't comment on reports that it is now pushed back to next year's fourth quarter.

"I wouldn't venture to guess on that, to be honest with you," she said. "When we hit Beta 2, we'll give you the Beta 3 milestone. If I gave you a date, it would be guessing at this point."

VanDam said there isn't one particular problem holding up the release, adding that Microsoft wants extra time to "focus on quality."

She said users will see complete feature sets of data and file synchronization, plug and play and the much-touted Active Directory. None of those features were completely functional in the first beta.

Regardless of why it is late or exactly how late it will be, users were neither shocked nor dismayed. Many said they were expecting it.

"Of course, I'm not surprised," said Paul Soares, general manager and vice president of Alden Buick Pontiac GMC in Fairhaven, Mass. "When you've dealt as long as I have with the computer world, delay is a fact of life. . . . They've delayed before. They may just delay again." □

Web coupons clip costs

CONTINUED FROM COVER 1

sleuthing," said Marian Salzman, director of the Young & Rubicam, Inc. brand futures group in New York. "The degree of intelligence that you can compile this way is really mind-boggling."

Internet coupons are also less expensive to distribute because there is no cost for printing, postage or newspaper/magazine advertising. Early indications are that Web coupons have a higher response rate as well.

ERIC YANG

FRAUD FEARS

But there are problems along with savings. Some in the industry worry about fraud, such as consumers altering a coupon they have downloaded. (Although online coupon advocates argue people can already scan in and alter paper coupons.) And the reach of the Internet — perhaps 50 million individuals online total — still can't touch the 55 million households that get Sunday newspapers.

Also, the thought of all that consumer information being tracked is likely to make privacy advocates queasy.

Still, proponents say online coupons are important as an increasing number of Americans move onto the 'net.

Catalina Marketing Corp. in St. Petersburg, Fla. — a $217 million company that pioneered in-store electronic coupons — has created a separate division called Supermarkets Online, Inc. devoted to Web coupons. "The Internet is a much better delivery system than traditional coupons," said David Rochon, CEO of the new division.

Its ValuPage Web site (*www.valupage.com*) has signed up 37 national manufacturers and more than 7,000 supermarkets and handled 200,000 users during a recent week, he said.

Shoppers there receive a weekly bar-coded shopping list they take to a local store. After presenting that list at checkout time, they receive "Web bucks" good for any future purchase at the store. In California tests last fall, many consumers said they were concerned about privacy issues — yet 92% also said they would give some information in return for personalized values, Rochon said.

The Interactive Coupon Network in Chicago posted a Web coupon site in March 1997 with retailers such as JC Penney Co., Kmart and Toys R Us, Inc. Its Cool Savings (*www.coolsavings.com*) site is registering 100,000 new users per month and already has more than a million, said Chairman Steven Golden.

"Our 'clip rate' has beaten our expectations," said John Jeanmonod, Internet merchandise manager at Kmart in Troy, Mich. Kmart believes the program is bringing new customers into its stores, he said.

While the redemption rate for a typical paper coupon is around 2%, Cool Savings said 20% of its coupons printed out are actually used in a store. Golden predicts Cool Savings will become profitable next year.

But offerings on many sites aiming to target ads by city still pale in comparison with what is available on paper. "Many . . . offerings remain anemic and poorly organized," according to a report by Jupiter Communications, Inc. in New York. □

Estee Lauder tackles Web, channel conflict

By Sharon Machlis

ESTEE LAUDER COS., the $4 billion-per-year cosmetics business, plans to start selling one of its flagship brands directly to consumers over the Internet in October, despite the potential conflict with retail stores that made its Clinique line the top seller in so-called prestige skin care and cosmetics.

That channel conflict needed "a solution that didn't make stomachs turn" among Estee Lauder executives, said Angela Kapp, vice president of special markets and new media at the New York-based firm.

To ease retailer fears, Estee Lauder will give consumers a choice on the Clinique.com World Wide Web site: They can place their electronic orders either with Estee Lauder or with one of several national retailers linked to the site.

SEE A CONSULTANT

While taking orders, the site also will try to drive some traffic to the stores, recommending that certain products be tested at a counter before purchase.

"Channel conflict is about emotion," Kapp said. "We tried to deflate the issue — it's only about who fulfills the product order."

Estee Lauder has received E-mail from customers eager to buy direct from the Clinique site, Kapp said. "They don't care about our channel conflict," she noted. By failing to provide a Web-based sales channel, "we do run the risk that the less-loyal customer will go" to another brand, she said.

National retailers participating in the new site must be able to send and receive order information with Estee Lauder's standard database format. "That is yet another kind of 'nightmare.com,' " Kapp said.

Although some retailers are proving to be technologically savvy, others are encountering glitches. For example, one can accept order data but can't send it out again.

Estee Lauder's Angela Kapp: "Channel conflict is about emotion"

Beyond the potential for channel conflict, online selling raises the issue of how to re-create the in-store impulse buys, in which a woman goes to a Clinique counter for one product and ends up buying two or three.

The site will try to encourage more purchases by recommending additional products — for example, a matching powder if a woman buys some foundation, Kapp explained.

Estee Lauder also hopes that Clinique.com will help it find new customers who avoid buying from beauty consultants at a cosmetics counter because they find the experience intimidating.

There is another major benefit for Estee Lauder: gathering data about its customers. The company now has no information about its 15 million regular customers in the U.S. because its files are kept on index cards in 2,000 stores across the U.S., Kapp said.

"The Web site is ideal . . . in the cosmetics world, where you have a very intimate relationship [with customers]," said Stuart Sawabini, president of the APL Group, an electronic-commerce consulting firm in Wilton, Conn. "The spectacular amount of information you can accumulate . . . seems to me an enormous opportunity." □

HP security chief talks up Internet business

Hewlett-Packard Co. last week appointed Roberto Medrano, former chief of Finjan, Inc., an Internet security start-up, as general manager of HP's Internet Security Operation, a newly minted division of its Internet Software Business Unit. Here are excerpts from Medrano's talk with senior editor Jaikumar Vijayan.

On his priorities:

"The focus is on Internet security products [based on] HP-UX Unix and Windows NT . . . and later, on other areas. There is a lot of technology within HP that can be productized and developed into a software business.

Some of these [security products] are also going to be attached to OpenView [HP's system management environment] and some to our encryption technologies."

On his appointment:

"The fact that HP wanted to get somebody who has been in the Internet security industry is an indication of its commitment to get an Internet story out."

On his role within HP:

"I am two levels below the president of the company. I have my own organization that reports to the software business unit. Under my domain are two HP labs that do nothing but develop Internet security products."

On how the software will be distributed:

"We not only have our regular sales force, but we also have a few hundred software salespeople who are selling nothing but software."

On how soon products will start rolling out:

"You'll be seeing new product announcements in a quarter." □

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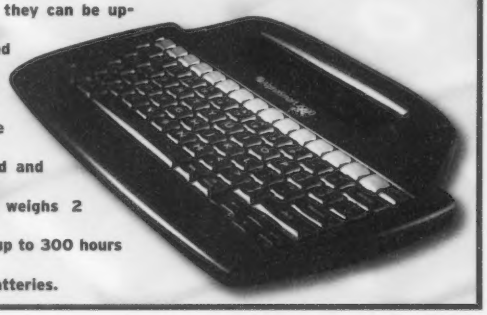


Coders score low in 'EQ'

Generalizations that all IT workers are socially challenged nerds aren't accurate, according to a new study of IT professionals' "emotional intelligence."

The preliminary study by Multi-Health Systems, Inc. in Toronto found that help desk workers have higher Emotional Quotient (EQ) scores than the general public, on average. But programmers scored low on the 133-question test (see chart below).

The EQ scores rate a person's ability to handle life's demands in categories such as problem-solving, adaptability, impulse control and stress tolerance.

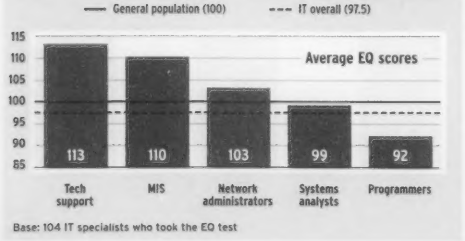
Results are compared with a database of 18,000 previous scores. The company claims EQ scores are a better predictor of workplace success than the traditional IQ test.

IT professionals with high EQs "use their interpersonal skills to get more information, to get help solving problems and are generally better liked by others," says Steven Stein, a psychologist and president of the testing company.

Not surprisingly, the IT profession as a whole scored highest in problem-solving and lowest in interpersonal relations.

— Mitch Betts

RATING TECH WORKERS' EQ



Base: 104 IT specialists who took the EQ test

Source: Multi-Health Systems, Inc., Toronto

Digital archives

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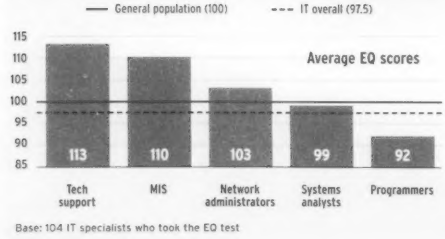

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